Essentials of Cosmetic Therapy

ROBERT L. BEAMER

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Essentials

of

Cosmetic Therapy

ROBERT L. BEAMER

ELEVENTH EDITION

BY

Founder of

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PREFACE

In the preparation of this work, I have endeavored to keep one aim—to present the essentials of *Cosmetic Therapy* in a sufficiently complete manner as to give the student and operator a fundamental, practical knowledge of the parts upon which she works, as well as their relations. To avoid confusing the operator with unnecessary ramifications, details in numerous instances are omitted. Thus the following work establishes a basis for those operators who wish to follow up with a study of the textbooks upon the various subjects.

I am indebted to several gentlemen for their aid in the preparation of this work as well as checking for errors. To those experienced operators who have given their aid on the practical applications in the operator's work and to the several physicians and specialists who have made suggestions.

R. L. B.

INTRODUCTION

Cosmetic Therapy, according to the Oregon State Law, is the application of the hands or of mechanical or electrical apparatus, with or without cosmetic preparations, tonics, lotions, creams or clays, to massage, cleanse, stimulate, manipulate, exercise or otherwise improve or beautify the scalp, face, neck, shoulders, arms or upper part of the body, removing superfluous hair, manicuring the nails of any person, male or female, and to arrange, dress, curl, wave, cleanse, singe, bleach, color or similarly treat the hair of any female.

Or, in other words, Cosmetic Therapy concerns any remedy or measure to beautify the skin or its appendages.

Cosmetic Therapy is one of the oldest arts, and like the other arts is constantly changing in its application. To the uninitiated it appears as if Beauty Culture itself were changing, but to those operators who have a fundamental knowledge of the human body and its reactions, beauty culture is not changing, except in as far as arranging appurtenances to the mode, and in some things the application.

The application, as well as massage are employed in different manners to obtain varying results. This implies that the operator has a sufficient knowledge of the parts involved, to judge what is best to do. It is essential that the operator *know* the muscles and nerves upon which she is operating, as well as the formation of the skin. And yet of all the operators claiming to give massage, only a very few have this knowledge or realize that it is essential. Positive damage may result from incorrect manipulation, as much so as positive benefit from correct massage. An operator who does not follow the muscles and nerves knowingly, is merely "*aping*" a set of rules without realizing what she is intending to accomplish. Incorrect work is never satisfactory to a patron who knows what she wants. Beauty culture is as ancient as mankind, and the

knowledge gained through the centuries of the relations between the functions of the different organs of the body, combined with the science of today, has raised beauty culture to the status of a profession, as well as an exact science. It is true there are many of the outward forms which have changed very little with the exception of means of application. These appear to work around in cycles of time.

As an instance of this the paper curl of today may be given. In ancient *Egypt* the paper curl was given without irons, hot clay being used. In England during early times it found favor, the curl being wrapped in papyrus and heated with an iron. At the present time this differs very little, being wrapped in a special manner in paper and heated with a special iron. Thus the principle or fundamental is the same, but method of application varies.

From the *scientific* schools of *Cosmetic Therapy* of today will come the managers and owners of the future shops, for beauty culture is now an established *profession.* The scientific operator is now in greater demand than before, because the "*Woman of the Hour*" has awakened to the necessity of self-care.

Cheerfulness is one of the greatest attributes of the successful operator. The patron enters the shop with the expectation of being benefited, and if bored with a tale of woe, is not liable to return. These tales of grief place the patron in an irritated frame of mind, in which she is unlikely to relax and obtain the best results. Carefulness is the next attribute and is essential to the operator, who is working for success. Cleanliness is another attribute, without which it is impossible to build success; not only cleanliness of surroundings, but the personal appearance of the operator. There is nothing quite so offensive as a body odor to the patron. Remember the three C's upon which to build success are—*Cleanliness*, *Carefulness*, *Cheerfulness.*

Beauty culture in the last few years has developed from a process of addition to one of subtraction. The old-time "*beautiful woman*" with hip pads, bust forms,

immense powdered wigs, white-washed face, etc., has vanished and her place taken by the natural slender figure of youth. The natural hair is now coiffured to conform to the face and at the same time allow ventilation for the scalp. Eyebrows are now plucked into a slender line instead of marked heavily. The natural skin is built up smooth, natural and beautiful, instead of enameled or white-washed. The natural, beautiful skin in conjunction with simplicity is the keynote.

The normal skin needs sanitary daily cleansing preparations to keep the skin supple and smooth. Astringents to keep the pores from opening unduly, a *non-irritating* and *non-clogging* powder base and powder which rests *on* the skin. This coupled with correct massage prevents the skin from aging, taking on lines or flabbiness and at the same time promotes general health.

The author in experimenting with certain chemical compositions for the hair, has found that the common house cat is more susceptible to most drugs than any other animal. The old reliable guinea pig is a standard to compare with. The toxic dose which will not show plainly upon the guinea pig, will often cause death with the cat. As an instance of this, sheep dip, creosote, paraphenyline diamine may be mentioned. If tested per grain for each pound of body weight, the cat will be found more susceptible to these as well as many other drugs, for external application, than the guinea pig. By using the guinea pig as an indicator and the cat as the test, the apparent toxicity of applications for the hair may be tested.

The first essential to beauty is cleanliness. Cleanliness may be accomplished more easily and thoroughly with cleansing cream than in any other manner. Cleansing cream removes dirt from the skin by softening the exudates and loosening the dirt and oils so they may easily be removed with a cloth. It washes out the pores, allowing them to close naturally, thus preventing large pores. Partly cleaning the pores, then closing them often causes an eruption.

Cleansing creams, tissue creams, skin creams, Sylvan cream, etc., each have a distinctive place and should be used in their place. Our scientific products are each destined for a specific purpose, both as to facial and scalp work. No items are general purpose items which like the "*quack's*" nostrums or cure-alls, fail entirely. To the operator thoroughly versed in the system, only success can come. This not only includes the work in the shop, but the correct selection for the patron's needs outside the shop. If the correct selection is not made for the patron, much of the operator's work will be undone by the patron daily. Often the patron will remark, "I am using the same cream as Mrs....., but it leaves my skin so oily." Naturally this would be so, as Mrs..... skin is dry and demands oil, where the patron's skin is naturally oily. At this point let us also state, do not use different brands of preparations together. No results can be obtained by this lack of method. A Packard car would not run smoothly with one-half the gears Packard gears and the other half Ford gears. Neither may an operator expect to have treatments run smoothly by mixing cosmetics. Preparations from a single laboratory are destined to work together.

The selection of cosmetics is an education in itself and should not be left to the clerk behind the department store bargain counter. Many of the preparations are bought in this manner because "they have the cutest jars" or "the odor is wonderful." Many so-called *wonderful* odors are in reality injurious to the skin.

Astringents are a necessity on the part of the patron as well as the operator. The pores of the skin should be closed after any manipulation of the face, whether it is massage or only the application of cleansing cream. Many women have used creams for years, but never an astringent, which is carrying out one factor but overlooking another entirely. Be sure your patron has the necessary cosmetics and also that the preparations do not work against you. Advise as sincerely as

you would wish to be advised, and when you are backed by a complete line of necessities, meeting all requirements of cosmetic practice, both in perfect health and corrective, you can easily do this.

Easily 50 per cent of the patrons when they first enter your shop, are using cosmetics which do not agree with them. A suggestion on your part, if properly given, is appreciated by them and brings back satisfied customers. At the same time, cosmetic preparations, properly handled, will not only return trade to you but will materially increase your profits.

COSMETIC ANATOMY

To the student starting upon a course in *Cosmetic Therapy*, the anatomical names appear unsurmountable. Upon application, however, this difficulty soon disappears and the student after working upon the part is surprised to find that they are not nearly as difficult as they appeared at first.

To properly carry out the work in a scientific manner, the operator must know not only the different parts but their relations and functions. The reason for this is obvious. No preparation or mechanical appliance made by man can build new cells. The doctor, dentist, chemist and electrical experts *may* aid nature in building new cells by giving the cells better conditions under which to develop. This may be accomplished by stimulation to certain parts, aiding the parts in throwing off excretions and waste materials, causing a greater flow of food supply to the part and exercising the part so there is a need for development. A part of the body that is never used, gradually loses its strength, while that part which is used constantly increases in strength. Practically all of the operator's work is building up those parts which are unused. This is easily demonstrated with a piece of cloth. A piece of cloth a foot square if held by supports evenly on all four sides, when tightened, will yet have a smooth surface. Now take the cloth between the fingers, on each edge of the cloth and exert a very little tension. The cloth immediately is thrown into ridges. This is caused by the cloth having a greater tension at certain points. The skin and tissues react in somewhat the same manner. If one muscle is over-developed and another close by is under-developed, there is naturally a greater tension where the muscle is over-developed. If the under-developed muscle is built up to take the proper amount of tension, normal conditions again prevail. Thus the *expert* operator, desiring results, will work upon the under-developed parts, aiding in building them up to assume their normal functions. This cannot be done by the slip-shod op-

erator, knowing nothing of the construction of the parts and their functions. Knowledge of the parts and knowing how to apply that knowledge will accomplish results. Hoping for miracles to happen will not.

To obtain this knowledge from a medical anatomy is, for the student of *Cosmetic Therapy*, impracticable at least. The following work, in conjunction with the lectures, will be found to meet the needs of the operator.

To simplify the study of the head and neck, the bones will be taken up first; then the muscles, blood supply, nerves and lastly the skin. Remedial measures will then be taken up in as concise a manner as possible.

No details are given which are unnecessary in the work. A few details which may appear as necessary to the *scientific* operator, may be overlooked. Numerous details which are essential to the physician, dentist and optometrist, are not essential to the operator. These are omitted as being irrelevant to the work of the operator.

A few of the terms and definitions to understand the differentiation in the subjects are here given.

ANATOMY is a study of the structure of the human body.

PHYSIOLOGY is a study of the functions of the body.

The SKELETON is the supporting bony structure of the body. It is the bony framework of the body supporting the soft tissues, protecting the internal organs and giving shape and strength to the body. The skeleton is divided into three divisions: the skull, trunk and limbs.

The SKULL is composed of the cranial and facial bones. The trunk is composed of the Spinal Column (backbone), Clavicle (collar bone), Sternum (breast-bone), the Ribs and the Pelvis (hip-bone). The spinal column is composed of 26 bones or sections. The upper portion or cervical spine of 7 bones, the middle portion known as the dorsal spine of 12 bones, to which

the ribs are attached, the lumbar spine or lower part of the spine of 5 bones, the Sacrum and the Coccyx.

The ribs are long, flat-curved bones forming the walls of the chest.

The bones of the body are composed of both mineral and animal matter. The mineral matter such as lime, phosphorous gives strength and rigidity, while the animal matter gives flexibility and toughness.

Connecting the bones are joints. These may have no movement as in some parts of the skull or be movable as the joints of the fingers.

QUESTIONS

1. What is Anatomy?
2. Define Physiology.
3. What is the skeleton?
4. What is the function of the skeleton,
5. What are the main divisions of the skeleton?
6. Into what two divisions is the skull divided?
7. What are the main divisions of the spine and where located?
8. What is the common name of the Clavicle?
9. What is the common name of the Sternum?
10. What are the ribs?
11. Of what are the bones composed?
12. What is a joint?

CHAPTER I

THE SKULL

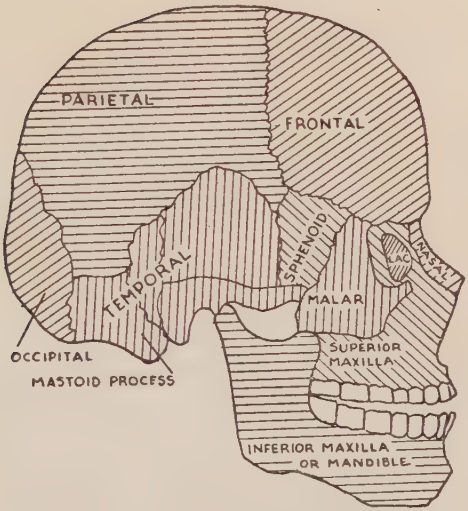

CHART I—The Bones of the Skull.

The entire skeleton of the head is termed the skull. The skull is the framework upon which are built the tissues of the head, and also is the horny envelope for the brain. The bones of the skull are twenty-three in number and are divided into fifteen cranial and seven facial.

The facial bones are: 1 Mandible or Inferior Maxillary, 2 Superior Maxillary, 2 Malar, 2 Palatives.

The Cranial bones are: 1 Occipital, 1 Sphenoid, 1 Ethmoid, 1 Frontal, 2 Parietals, 2 Temporals, 3 Turbinates, 2 Lachrymal, 2 Nasal and 1 Vomer.

Of these the Vomer, Palatives, Turbinates and Ethmoid are of no interest to the operator, as she does not operate directly on them.

THE CRANIAL BONES

The *Frontal* Bone, situated in the fore part of the cranium, forms the forehead.

The two *Parietal* Bones form the arch and roof of the skull.

The *Occipital Bone* is situated at the back and lower part of the cranium, and rests upon the first vertebrae.

The two *Temporal* Bones are situated about the center of the lower half on either side of the skull.

The *Sphenoid Bone* extends from one side of the head to the other and is wedged between the bones at the forward part of the base of the Cranium.

The *Ethmoid Bone* is situated in front of the Sphenoid, between the orbits at the base of the nose.

The *Lacrimal Bones* are very thin bones which form the central walls of the orbits.

The *Nasal Bones* form the bridge of the nose.

THE FACIAL BONES

The two *Maxilla* or Superior Maxilla form the upper jaw, and holds the upper teeth.

The two *Malar Bones* lie underneath the most prominent part of the cheeks and are often called the cheek bones.

The *Mandible* or Inferior Maxilla is of horseshoe shape, contains the lower teeth, and is sometimes called the jaw or jawbone.

CHAPTER II

MUSCLES

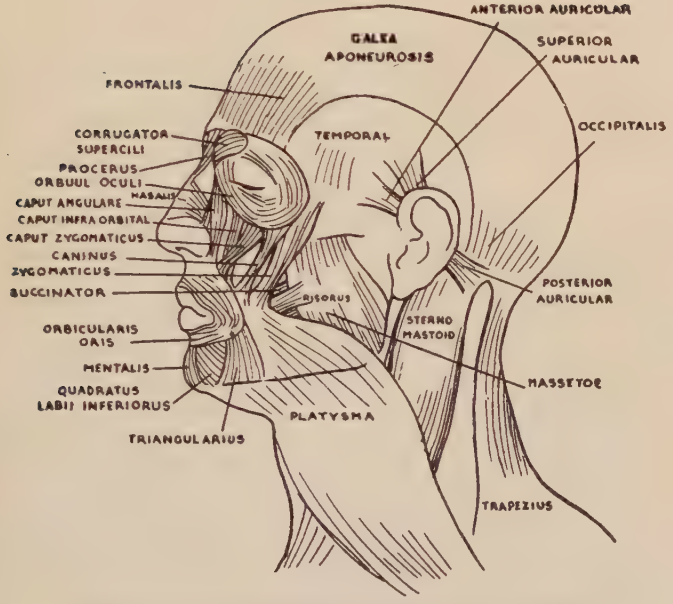

CHART II—Muscles of the Head and Neck.

The mass of the body external to the skeleton is composed of flesh or muscle which largely determines the outline and weight.

Muscle is organic contractile tissue, the means of animal motion. Muscles have the power to contract from end to end, when properly stimulated, thus shortening the length, at the same time increasing the width. The volume is not changed, however, as they increase in width in the same proportion as the length is diminished.

There are two classifications of muscle tissue with which the cosmetician deals, namely: 1. Voluntary or Striated muscles; 2. Involuntary or non-striated muscle tissue.

The Voluntary or Striated muscle fibers appear more rounded on the tips than the involuntary, and also as the name striated implies, appears to have small stripes or furrows. These muscles are controlled by the will and altho at times their action appears involuntary through habit, they are controlled by the Cerebro Spinal nervous system. These are the muscles which we direct in walking, grasping with the hands, etc.

The *Involuntary* or Non-Striated muscles have no Striations, occur in small sheaths, are pointed at the tips and are not controlled by the will, but rather by the Sympathetic Nervous System. These muscles are found attached to the hair follicles; in the walls of the digestive apparatus; in the walls of the blood vessels and lungs.

Muscles are attached to the bones by means of sinews known as tendons. These sinews or tendons have no power of contraction but act as connectors between the muscle and the bones.

Muscles obtain their blood supply from branches of the arteries. This blood supply is increased during activity, and the blood vessels dilate. Due to increased consumption of oxygen, more heat is generated and more carbonic acid gas thrown off. In fact, the human body may in many respects be compared to a slow burning fire in a furnace. As the slow-burning fire in the furnace requires fuel and air, so do the muscles of the body require oxygen and food. The capacity of the muscles of the body to do their work is reduced by fatigue, lack of exercise and nutrition. Upon passing maturity, muscular tissue gradually becomes weak and flabby. This condition may also prevail thru lack of exercise, thru fatigue or on account of malnutrition. You may have heard the expression, "An old young person." This appearance is induced at times

thru malnutrition, often thru fatigue and more often thru lack of exercise. As the muscles will build up with proper food and exercise and withstand a greater amount of work without fatigue, the value of proper exercise cannot be overestimated. As massage might be termed passive exercise, this form of exercise has advantages, as the exercise may be confined to certain muscles. The activity of the muscles also increases the flow of Lymph and therefore waste materials are better eliminated. This is one of the benefits of correct massage. To operate properly in massage, it is necessary to know where the muscles are, as well as having a knowledge of the skin.

For study of the muscles of the head and neck the muscles may be divided into six groups as follows: neck, mastication, mouth, nose, eye, scalp. The names are at first difficult, but are not nearly as terrifying upon acquaintance. In considering muscles it is necessary at the same time to consider where the muscle obtains its impulse or nerve supply and its action. The following tables will somewhat simplify this in conjunction with the charts.

MUSCLES OF THE NECK

NAME	RISES FROM	INSERTION	NERVE	ACTION
Platysma	Clavicle	Inferior Maxillary Angle of the mouth	Facial	Wrinkles the Skin and depresses the Mouth
Trapezius	Line of Occipital and dorsal vertebra	Clavicle Scapula	Third and fourth Cervical	Draws the Head back
Sterno Mastoid	Sternum and Clavicle	Mastoid Process	Plexus Spinal Access. Cervical Plex	Depresses and rotates the Head

MUSCLES OF MASTICATION

NAME	ARISES FROM	INSERT	NERVE	ACTION
Internal Pterygoid	Sphenoid bone	Inner surface angle of jaw	Inferior Maxilla	Raises lower jaw and draws it forward
External Pterygoid	Sphenoid bone	Lower jaw	Inner surface Inferior Maxilla	Draws lower jaw forward
Masseter	Superior Maxilla	Angle of lower jaw	Angle of Inferior Maxilla	Mastication
Temporal	Temporal bone	Inferior Maxilla	Inferior Maxilla	Brings first four teeth together

MUSCLES OF THE MOUTH

NAME	ARISES FROM	INSERT	NERVE	ACTION
Orbicularis Oris	Nasal Septem Inferior Max.	Forms lips Buccinator muscle	Facial	Closes the mouth
Buccinator	Maxillary bones	Orbicularis Oris	Buccal Facial	Compresses cheeks and retracts angle of mouth
Triangularis	Nasal Septum Inferior Max.	Angle of mouth	Facial	Depresses angle of mouth
Quadratus Labii Inf. (Group)	Lower jaw	Lower lip	Facial	Depresses lip
Mentalis	Inferior Max.	Skin of lower lip	Facial	Elevates and protrudes lower lip
Zygomaticus	Malar bone	Angle of mouth In Orbicularis Oris	Infra-Orbital	Elevates lip outward
Caput Zygomaticus	Malar bone	Angle of mouth	Infra-Orbital	Elevates lip up and outwards
Caninus	Superior Maxillary	Angle of mouth	Infra-Orbital	Raises corners of the mouth
Caput Infraorbital	Lower margin of Orbit	Upper lip	Infra-Orbital	Dilates nostril, elevates lip
Risorius	Masseter muscle	Angle of mouth	Facial	Draws back angle of mouth

MUSCLES OF THE NOSE

NAME	ARISES FROM	INSERT	NERVE	ACTION
Depressor Alae Nasi	Superior Maxilla	Septum of Nose	Buccal Branch Facial	Contracts nostril
Nasalis	Superior Maxilla	Cartilage of Nose	Facial	Compresses nostril
Procerus	Occipito Frontalis	Into skin over lower forehead between eyes	Facial	Lowers eyebrow and produces wrinkles over bridge of nose
Caput Angulare	Superior Maxillary	Upper lip	Facial	Dilates nostril

MUSCLES OF THE EYES

NAME	ARISES FROM	INSERT	NERVE	ACTION
Orbicularis Oculi	Internal Margin Orbit	Outer margin Orbit	Facial	Closes eyelids
Corrugator Supercili	Frontal bone	Orbicularis Oculi	Facial	Draws eyebrow downward and in
Levator Palpebrae Superioris	Margin Optic Foramen	Orbicularis Oculi, skin of upper lid and tarsus	Oculo motor nerve	Opens eye lid

MUSCLES OF THE SCALP

NAME	ARISES FROM	INSERT	NERVE	ACTION
Occipito Frontalis	Occipital bone	Aponeurosis	Posterior Auricular Small Occipital Facial	Moves the scalp
Superior Auricular	Aponeurosis	Cartilage of ear	Temporo Facial	Elevates ear
Anterior Auricular	Aponeurosis Occipito Frontalis	Front margin of ear	Facial	Raises the ear
Posterior Auricular	Mastoid process	Outer ear	Posterior Auricular	Retracts ear

QUESTIONS

1. What is muscle?
2. What is voluntary muscle?
3. What is an involuntary muscle?
4. How are the muscles attached to the bones?
5. What reduces the work capacity of the muscles?
6. With what must the muscles be supplied?
7. What effect has maturity upon muscular tissue?
8. What effect has exercise upon the blood supply?
9. What is passive exercise?
10. Name the muscles of the neck; what is the action of each?
11. Name the muscles of mastication; what is the action of each?
12. Name the muscles of the mouth; what is the action of each?
13. Name the muscles of the nose; what is the action of each?
14. Name the muscles of the eyes; what is the action of each?
15. Name the muscles of the scalp; what is the action of each?
16. What muscle closes the eyelids?
17. What muscle produces wrinkles on the nose?
18. What muscle is responsible for the lines across the forehead?

CHAPTER III

MUSCLES OF THE FACE AS RELATED TO EXPRESSION

By study of the foregoing tables of the muscles in conjunction with the chart, a fairly accurate placement of the muscles may be used. For study, in regard to *Plastic Anatomy*, the muscles of the face may be divided into two groups, namely: Mastication and Expression. In considering their action, it is necessary for the operator to have a general knowledge of what expressions they portray. In these portraits of emotion, a key to the work of the operator in massage is given. The operator in her work should endeavor to build up the tissues which are not properly developed, omitting the ones which are over-developed, or at least touching on them very lightly. By this method the operator is enabled to obtain some very striking results. In this manner of working, an operator diagnoses the cause of certain lines. By assisting to build up the tissues which are neglected, or the muscles that work against the muscles that cause the folds or wrinkles, a balance is struck between the muscular tension of the two muscles. This takes some time to accomplish this work, but the efforts are well repaid.

In an expression numerous muscles are used, but generally with the action of one or two muscles predominating. By numerous repetitions of this expression, the predominating muscles become stronger and the *Antithesis*, or muscles which cause an opposite expression are weaker in proportion, thus allowing the expression that is used the most to "*set*" on the face. In the following chapter, the predominating muscles used to give expression, together with the chart showing their action and the expression, will give some idea of the expression caused by the action of a single muscle. These are illustrated by straight lines, showing the action of the one muscle without the assistance

of any other muscles. The remaining lines are not affected. Thus, if it were possible to cause a single muscle to contract, without causing the contraction of any other muscle, by the action of electricity or any other stimulant, the action of the predominating muscle might be ascertained. This was accomplished by at least two men in the past, and has given us the key on which to work. No one wishes to have an expression of discontent or weakness upon the face, so by working on the opposite muscles, these expressions are at least lessened.

CHART III
Sorrow or
Evil.

CHART IV
Strength and
Calmness.

CHART V
Gaiety or
Cheerfulness.

Facial expression might be divided into three great groups: Sorrow, Strength and Calmness, Gaiety. Or perhaps it were better to express this as: the reaction of Evil, either external or internal, as in Chart III; the reaction of a well-balanced mind in repose; the reaction of pleasant thoughts or pleasant sights. These might be expressed by straight lines in the following manner: The reaction of Evil by Vs with the points downward; the reaction of an evenly-balanced set of muscles by straight lines, as in Chart IV, and the reaction of pleasant thoughts or predominating influence of muscles exerting their tension upward by a V, as in Chart V. Thus, by a comparison of the three charts, we see that most of the operator's work is upon the muscles that raise the tissues.

MUSCLES OF MASTICATION

The *Masseter Muscle* is a quadrilateral fleshy mass, of which the Anterior border is thick, and on the subject forms a prominence. This prominence causes the cheeks to appear sunken. During violent emotions, or when exerting a powerful effort, we clench the jaws. Contracting the Masseter muscle portrays anger, menace, etc. Therefore an over-development of the Masseter muscle contributed to an energetic expression, if not of brute force.

The *Temporal Muscle* being partly covered and attached to a strong tendon, does not show a marked prominence in the Temporal region. The action of the upper extremity of this muscle does show a very little externally in mastication, as indicated by the skin of the temple being slightly raised in a series of rhythmical movements.

MUSCLES OF EXPRESSION

We have given the placement of the muscles of expression, but this does not imply the expression they give. But it does imply that, in a subject who is governed by one prevailing emotion, such as suspicion, grief or pain, the frequently repeated contraction of the muscles which correspond to the emotion, definitely mould the expression and character of the face. A general rule, which in most cases prevails, is: the contraction of each muscle of the face produces one or more folds, the general direction of these folds being at right angles to the muscle. This is especially true of the Frontalis muscle.

Occipito Frontalis Muscle—This muscle consists of two parts, Anterior and Posterior, connected by a membranous tendon known as the Galea Aponeurosis. The anterior or forward portion is known as the Frontalis. The posterior or back portion as the Occipital. In order to understand the action of the Occipito Frontalis muscle, it is necessary to consider it as having a fixed origin at the posterior part of the skull. It is at-

tached in front to the deep skin of the eyebrow and Orbicularis. The Frontalis, therefore, in contracting, draws the skin of the eyebrow and the skin of the up-

CHART VI—Attention, as expressed by Frontalis Muscle.

per eyelid from below upward, causing transverse folds to appear in the skin of the forehead. This muscle by contraction expresses attention. In greater contraction of this muscle astonishment is depicted.

CHART VII—Reflection, as expressed by Orbicularis Oculi.

Orbicularis Oculi—The upper portion of this muscle on contraction expresses reflection. *Antithesis* —Frontalis muscle.

Corrugator Supercili—This short muscle is well hidden beneath the skin at the head of the eyebrow. It draws the eyebrows inwards and slightly upwards, thereby producing on the skin of the forehead folds,

CHART VIII—Suffering or Sorrow, as expressed by Corrugator Supercili.

concentric to this gathering of the eyebrows, in the center of the forehead, besides producing the vertical furrows between eyebrows. This expression is characteristic of suffering, and if accentuated, physical or mental agony.

CHART IX—Gaiety, as expressed by Caninus and Zygomatic Muscles.

Zygomatic Muscle—This muscle is attached to the cheekbone and is inserted into the deep surface of the skin near the angle of the mouth. This muscle is known as the muscle of gaiety or laughter.

Procerus—Muscle of Menace—This small muscle is situated between the eyebrows on a level with the root of the nose. This muscle draws the skin of the space between the eyebrows downward, forming transverse folds and slightly depressing the inner part of the eyebrow. This produces an expression of menace or aggression, a shortening of this muscle produces an expression of harshness, or shadow between the eyebrows. Therefore, in those people whose eyebrows seem to meet, owing to an over-development of the eyebrows in this space, they present at first sight the appearance of severity or harshness, which may not agree with the character of the subject.

Caninus—The Caninus muscle aids the Zygomatic muscle in expression. Caninus arises from the upper jaw and is directed downward towards the outer angle of the mouth, blending with the Orbicularis Oris.

The Caninus raises the lower extremity of the Naso-Labial line, or the line which extends from the nose to the outer angle of the mouth, forming the smile line. The skin of the cheek is gathered up towards the cheekbone, causing a greater prominence of the cheeks and forming several radiating folds at the outer angle of the eye, commonly called crows' feet.

Caput Zygomaticus—This muscle arises from the malar bone and attaches into the thickness of the up-

CHART X—Grief, Caput Zygomaticus.

per lip. This muscle in conjunction with the Caput Infra-Orbitale expresses by the angle of the mouth

discontent or grief. These two muscles raise the center of the upper lip into somewhat of an inverted semicircle. These muscles are the antithesis in expression of the Zygomatic muscle.

CHART XI—Grief with Tears; Infra Orbital, Caput Zygomaticus and Caput Angulare.

Caput Angulare—This muscle arises from the inner border of the orbit, at the upper surface of the maxillary and descends vertically to be inserted into very nearly the center of the upper lip. It therefore raises the center of the upper lip, the outer points of the lips remaining fixed, giving the lips, in conjunction with the two preceding muscles just mentioned. a greater downward slant. At the same time it dilates the nostril by raising the wing of the nose and, by its action on the skin of the Naso-Labial line, causes this line to straighten. Thus we have the expression of grief with tears.

Nasalis—This muscle is attached at its origin to the maxilla on a level with the side of the nose, and passes forward over the nose to join a membranous insertion, the membranous insertion stretching over the bridge of the nose. This membranous insertion forms a point, towards which the skin of the cheek and nose is drawn by both the Nasalis and Procerus. This produces vertical folds on the sides of the nose. These muscles are considered by some to be characteristic of lasciviousness when combined with the action of the Frontalis and Zygomatic muscles.

Orbicularis Oris—This muscle surrounds the orifice of the mouth. The Orbicularis Oris is principally concerned with mastication, speech, suction, etc. In muscular expression, if only the inner fibers contract, they close the mouth, causing the surfaces of the upper and lower lips to come in contact. If only the outer fibers contract, they project the mouth forward as in kissing. Also in connection with other muscles a more pronounced expression is formed as in pouting.

Buccinator Muscle—The Buccinator muscle is a thin sheet of muscle in the hollow of the cheeks, in front of the masseter. The Buccinator to some extent assists in drawing the angle of the mouth backwards as in grinning or snarling. Mostly its action is in drawing the cheeks, as when a baby is sucking. The Buccinator is of aid in mastication by bringing the food between the teeth that passes between the cheeks and the teeth, articulation of sounds, whistling, playing of wind instruments, etc., as it forces air from the mouth when it contracts.

CHART XII—Discontent, Contempt; Trianguiaris Muscle.

Triangularis—This muscle, as its name implies, forms a triangular layer, attached to the lower jaw and is continuous with the Platysma—converging toward the angle of the mouth and inserting into the Orbicularis Oris and deep surface of the skin at the angle of the mouth. This muscle contracts and draws down the outer corners of the mouth of Labial Commisure, forming an oblique line downwards and out-

wards. It also depresses the lower part of the Naso-Labial line so as to render this line slightly curved inwards at the lower extremity. This expression caused by a slight contraction of the Triangularis, is sadness. A greater contraction of this muscle produces the expression of contempt, in conjunction with the action of the Caput Angulare.

Quadratus Labii Inferioris—This muscle is partly hidden by the Triangularis. The Quadratus Labii Inferioris arises from the forward part of the lower jaw and ascends to be inserted into the whole length of the lower lip. This muscle depresses the lower lip outwards, as in the grimace caused generally by the taste of quinine or any disagreeable food which is forcibly ejected.

Platysma—On each forward half, on the side of the neck, is a thin muscular sheet, situated between the skin and the deep muscular tissue. This muscle is attached to the upper part of the chest, from which its fibers ascend obliquely forward to be inserted into the edge of the jaw and the skin of the lower lip. The Platysma muscle lends itself to numerous expressions, especially when great energy is portrayed.

Risorius—The Risorius muscle is partly a continuation of the Platysma and in part a separate muscle arising from the tissues surrounding the Masseter muscle, passing forward to be inserted into the Orbicularis Oris and skin at the angle of the mouth. This muscle does not produce an expression of gaiety, but rather of sardonic laughter, threatening or sneering expressions.

From study of the foregoing work upon the facial muscles, we see there are some muscles which, by their action alone, change the expression, while others are expressive in a complimentary sense. The experiments of numerous men in research work show, usually there are only two muscles associated or combined in an expression. Three muscles are sometimes in play, seldom

four. As an example of this: The contraction of the Frontalis and Zygomatic muscles in a sight which excites mirth might be given. This is a combination of attention and laughter. At the same time there are some expressions which are not so simple, but at the same time are not as productive of lines and wrinkles as the foregoing. A safe rule for the operator to follow in her work is—plenty of massage work upon the muscles which lift the skin up, lighter massage to tone the skin upon the muscles which have a tendency to cause downward lines.

QUESTIONS

1. In muscular expression, what is the term antithesis used to express?
2. How may lines or wrinkles be lessened or obliterated?
3. What causes expression?
4. Into what three groups are facial expressions divided?
5. What reactions do they express?
6. What expression does the Masseter muscle develop?
7. To what does the Frontalis muscle attach in front? What lines does it cause? What expression,
8. What expression does the Orbicularis Oculi depict.
9. What action does the Corrugator Supercili have? What expression does its action produce?
10. To what does the Zygomatic muscle attach? What is the muscle known as?
11. Where is the Procerus located? What expression does this muscle give?
12. What action has the Caninus?
13. Where is the Caput Zygomaticus muscle located, To what muscle is it the antithesis?
14. The Caput Angulare is responsible for what expression?

15. What action has the Orbicularis Oris?
16. Where is the Buccinator muscle located? What is its action?
17. Where is the Triangularis muscle located? What is its action?
18. What action has the Quadratis Labii Inferioris?
19. Locate the Platysma muscle.
20. What action does the Risorius muscle produce?

NOTES

CHAPTER IV

THE BLOOD AND THE VASCULAR SYSTEM

The blood is the nutritive fluid of the body and is approximately one-sixteenth of the body weight. It carries nutrition and elements of repair to the tissues and also absorbs and carries away the waste materials. Blood consists of two portions, solid and fluid. The fluid portion is called the blood plasma. This fluid portion acts as a carrier to the blood corpuscles. The blood corpuscles are of three kinds, red, platelets (important in coagulation), and white. The red corpuscles under normal conditions are the most numerous. These small red discs carry the oxygen and nutrition to the tissues through the arteries and capillaries. When carrying their supply of oxygen they are red. After passing through the capillaries and upon their return to the veins they assume a purplish hue, due to a loss of oxygen and taking up a supply of carbon dioxide and waste material.

The white corpuscles or leucocytes are larger than the red corpuscles and are of great importance to the body as disease fighters. They also assist in the coagulation of the blood.

The fluid portion or blood plasma consists of serum and fibrin. The fibrin upon contact with air immediately forms into fine strings, which catch the white corpuscles and then the red. This forms a clot.

The *Vascular System* consists in their order of heart, arteries, capillaries and veins. The heart is a pump, through which practically all of the blood in the body passes every minute. The HEART is a cone or pear-shaped organ, composed of muscular tissue, located in the thorax or chest between the lungs and behind the breastbone. It is slightly nearer the front than the back of the chest. VEINS are the canals which carry the impure blood back TO the heart. The one excep-

tion is the Pulmonary vein, which returns the purified blood to the heart from the lungs. ARTERIES are the canals which carry the blood FROM the heart to be distributed to the tissues. CAPILLARIES are the connecting link between the last of the arteries and the veins. The blood is forced from the heart through the arteries which carry it to the capillaries, which supply the tissues with nutrition. As the blood is forced thru the arteries by the contraction of the left side of the heart, a wave-like motion of the blood is produced thru the arteries. This may be felt thru the arterial system and is known as the pulse. The blood then passes back through the veins to the heart. This is known as a cycle. Being more definite, the blood from the Superior Vena Cava, which drains the upper part of the body, and the Inferior Vena Cava, which drains the lower part of the body, join together and empty into the right Auricle of the heart, passes thru the Tricuspid valve into the right Ventricle, where it is emptied thru the Pulmonary valve into the Pulmonary Artery and passes to the lungs. There it is purified by giving up its contents of Carbon dioxide and taking on pure oxygen. It is now pure blood. It is returned to the heart thru the Pulmonary Vein into the left Auricle, passes thru the Bicuspid Valve to the left Ventricle. It is then pumped thru the Aortic Valve into the Aorta and passes thru the arteries to the capillaries. These capillaries pass the blood to the tissues. The blood nourishes the tissues and is then collected by the veins and passes back to the heart, thus completing the cycle. Upon the return of the blood to the heart from the body, the blood is venous, carrying the gases to be thrown off and the waste materials. It then passes to the lungs, throws off its load of carbon dioxide, takes on a load of oxygen, returns to the heart and is distributed through the system.

Blood might therefore be termed the internal liquid medium of the body, with the five functions: 1. Distributing nutrition. 2. Collecting waste materials. 3. Regulates the temperature of the body by its flow. 4.

Killing bacteria. 5. Distributing the internal secretions.

The arteries are embedded deeply in the tissues. The veins are more superficial. If the venous blood is forced back for purification, there will naturally be a cleaner blood supply than if the venous blood is allowed to stagnate. This is the benefit of massage.

QUESTIONS

1. What is blood?
2. Of what does it consist?
3. What is the function of red corpuscles? White corpuscles? Fibrin?
4. Of what does the vascular system consist?
5. What is the heart? Where located?
6. What is an artery?
7. What is a vein?
8. What is a capillary?
9. What is a cycle?
10. Give the passage of the blood in a cycle.
11. What functions has the blood?

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CHAPTER V
VEINS OF THE HEAD AND NECK

Veins are the vessels which carry the impure blood from the tissues to the heart. The only vein in the body which carries pure blood is the pulmonary vein which carries the blood from the lungs to the heart.

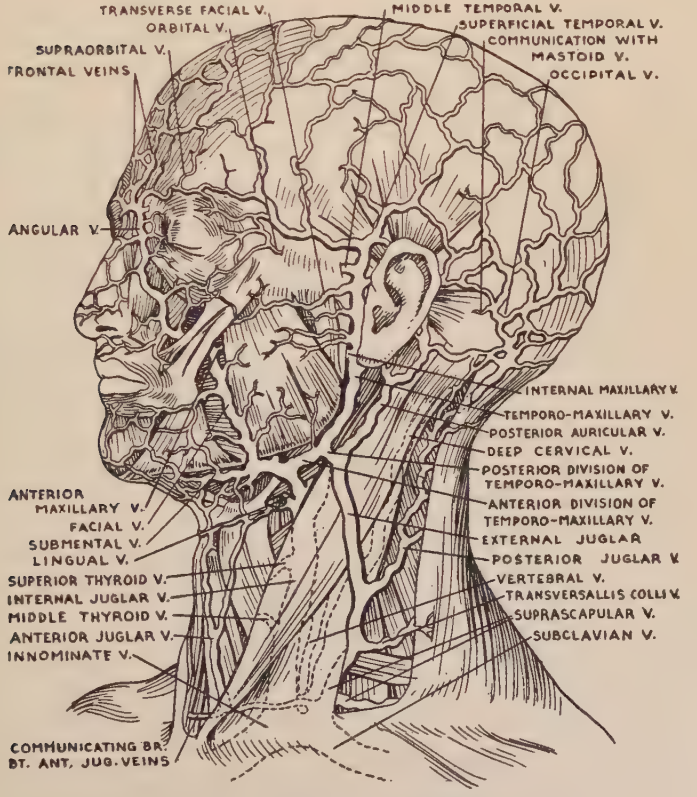
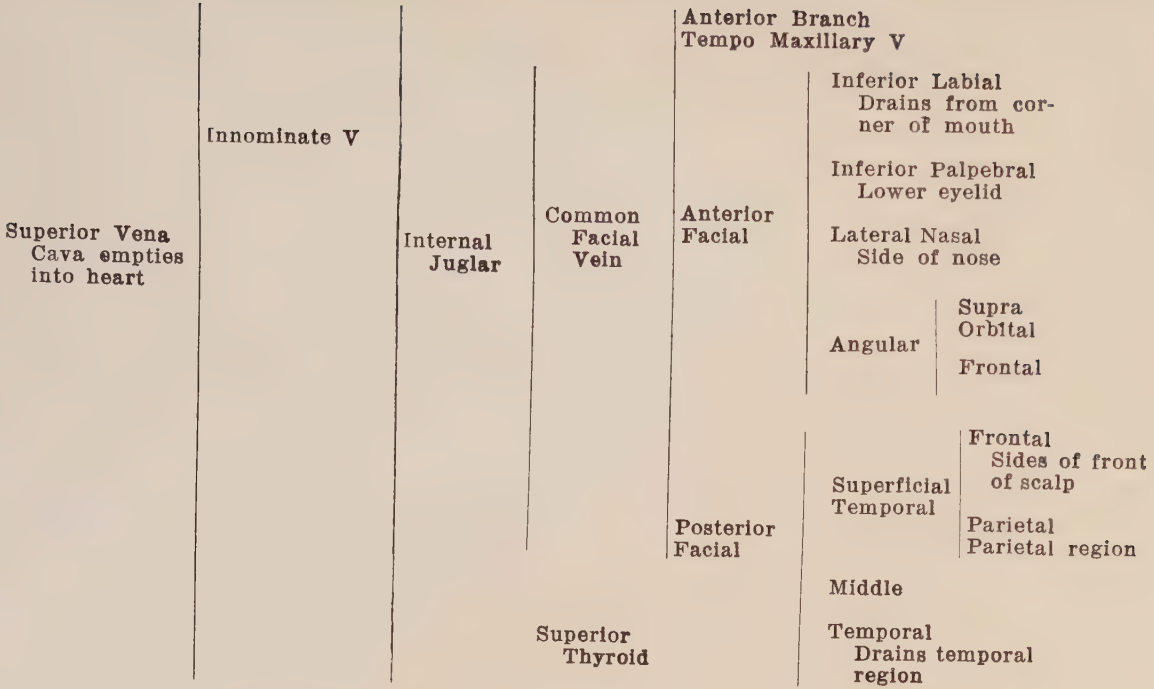


CHART XIII—Veins of the Head and Neck.

The head, face and neck are drained by the Superior Vena Cava vein, which empties into the heart.

The veins with which the operator deals are, Jugular, Posterior Jugular, Anterior Jugular, Supra Scapular, Temporo-Maxillary, Posterior Auricular, Occipital, Middle Temporal, Orbital, Supra Orbital, Frontal, Angular, Facial Maxillary, Submental and their branches.

Superior Vena Cava empties into heart	Innominate V.	Subclavian V.	External Jugular	Occipital V Drains back of head Posterior Branch Temporo Maxillary Posterior Auricular Drains Parietal and Temporal regions Anterior Jugular Drains chin and lower l'p


Superior Vena Cava empties into heart
Innominate V
Internal Juglar
Common Facial Vein
Superior Thyroid
Anterior Facial
Posterior Facial
Anterior Branch Tempo Maxillary V
Inferior Labial
Drains from corner of mouth
Inferior Palpebral
Lower eyelid
Lateral Nasal
Side of nose
Angular
Supra Orbital
Frontal
Superficial Temporal
Frontal
Sides of front of scalp
Parietal
Parietal region
Middle
Temporal
Drains temporal region

CHAPTER VI

ARTERIES

Arteries are the vessels which carry pure blood, containing nutrition from the heart to the tissues of the body. The only exception to this is the Pulmonary Artery, which carries impure blood from the heart to the lungs.

To the Operator: The arteries are of interest only as a source of nourishment. They are situated so deep that she hardly comes in contact with them. However, the main trunks are of interest.

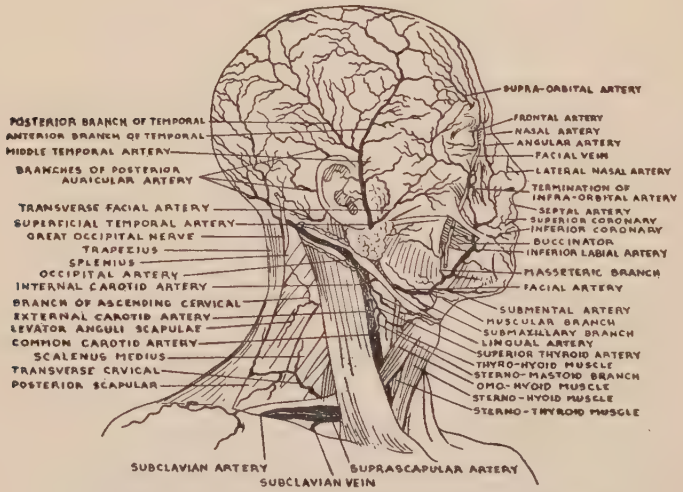
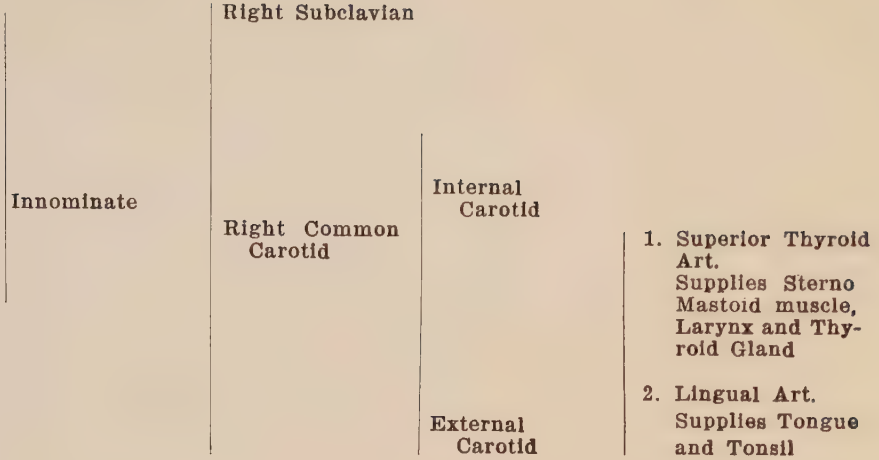
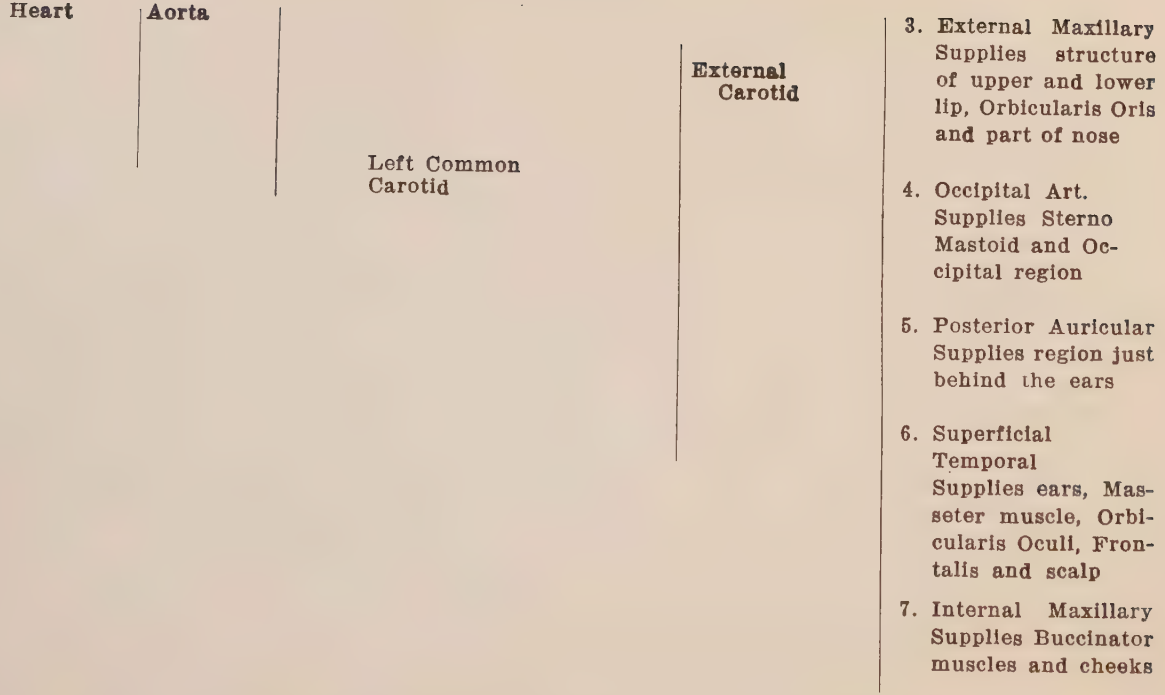


CHART XIV—Arteries of the Head and Neck.


Innominate
Right Subclavian
Right Common Carotid
Internal Carotid
External Carotid
1. Superior Thyroid Art.
Supplies Sterno Mastoid muscle, Larynx and Thyroid Gland
2. Lingual Art.
Supplies Tongue and Tonsil


Heart
Aorta
Left Common Carotid
External Carotid
3. External Maxillary Supplies structure of upper and lower lip, Orbicularis Oris and part of nose
4. Occipital Art. Supplies Sterno Mastoid and Occipital region
5. Posterior Auricular Supplies region just behind the ears
6. Superficial Temporal Supplies ears, Masseter muscle, Orbicularis Oculi, Frontalis and scalp
7. Internal Maxillary Supplies Buccinator muscles and cheeks

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CHAPTER VII
THE LYMPH AND LYMPHATIC SYSTEM

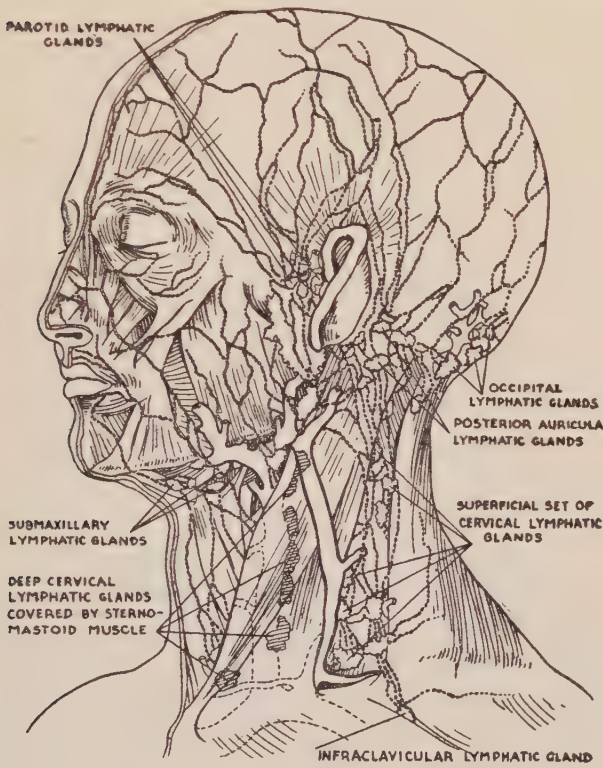
PAROTID LYMPHATIC GLANDS
OCCIPITAL LYMPHATIC GLANDS
POSTERIOR AURICULAR LYMPHATIC GLANDS
SUPERFICIAL SET OF CERVICAL LYMPHATIC GLANDS
SUBMAXILLARY LYMPHATIC GLANDS
DEEP CERVICAL LYMPHATIC GLANDS COVERED BY STERNO-MASTOID MUSCLE
INFRACLAVICULAR LYMPHATIC GLAND

CHART XV—Lymphatic Systems of Head and Neck.

The *lymphatic system* is a closed system of vessels, together with lymph glands and lacteals carrying lymph thru the body. This lymph passes thru at least one lymph gland, where it is purified. The function of the lymphatic system is to bathe the tissues, stop infection, collect waste and act as a sewer to the tissues of the body. The Thoracic duct drains the left

side of the head. The Lymphatic duct drains the right side.

The vessels of the *Lymphatic* system contain a colorless fluid, which is called *Lymph.* This Lymph is rich in white corpuscles and it partly exudates from serous cavities, partly plasma taken up from the tissues. The blood plasma passing from the arteries to the veins is not all taken up by the veins. This plasma is taken up by the Lymphatic system.

Lymph acts as a bath to the tissues, therefor collects waste materials from the tissues. This is the reason the Lymphatic system is sometimes called the *Sewer* of the body.

The Lymph taken up by the Lymphatic system is carried through at least one Lymphatic gland. This gland filters the Lymph, which is then passed on from one channel to another larger channel until it finally reaches the *Innominate* veins. All parts of the body possessing blood vessels are provided with Lymph vessels except the central nerve system, the eye and internal ear.

In bacterial infection of the tissues, the bacteria are taken up by the Lymphatic vessels and carried to the *Lymphatic glands.* Here the bacteria are filtered from the Lymph and if the infection is not too great the infection is stopped. This is best shown by an infection of the hand when the Lymph gland in the arm pit becomes enlarged and swollen. Here in the gland the bacteria are taken up and digested by the Leukocytes or white blood corpuscles.

The Lymphatic System is the only closed system in the body. It consists of Lymph vessels, Lymph glands and lacteals.

The Lymph glands of the head and neck, together with the parts they drain, are given in the following table.

- **Thoracic Duct**
  - **Inferior Deep Cervical Glands**
  - **Superior Deep Cervical Glands**
    - Occipital
      Drains Occipital Region
    - Posterior Auricular
      Drains Parietal Region
    - Anterior Auricular
      Drains Frontal and Temporal Region
      - Infra-orbital
        Drains angle of nose and cheek
      - Buccinator
        Eyelids and cheek
      - Supra Mandibular
        Drains lower lip
    - Parotid
      Drains outside ear— leepr part of cheek
    - Submaxillary
      Drains side of nose- -upper lip—side of lower lip

Lymph flows very slowly, except when the muscles are active. When a muscle contracts, the Lymph is forced from the tissues into the smaller Lymph vessels. At each contraction of the muscles, another flow is started, thus forcing the Lymph into the larger Lymph vessels and carrying off the waste materials. Thus in exercise the Lymph flows faster than when the muscles are not in use. Practically the same results ensue in massage, but in lesser degree. The benefits of massage on the Lymphatic system are a faster flow of Lymph, with a consequent better cleansing of the tissues.

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CHAPTER VIII

NERVES

Nerves are the means of uniting the body into a complete unit, as well as conveying sensation. Without the nerves, there would be no impulse to cause the muscles to act in unison. Thus the circulation of the blood, breathing, would be impossible. If it were possible for all the muscles to act independently of the nerves, there would be no co-ordination of the muscles. Thus walking, talking, would be impossible.

Nerves carry sensations to the brain and convey impulses to the muscles. They respond to external stimulation, such as massage and electricity.

A nerve therefore is a bundle of nerve fibers with the power of carrying sensations to the brain and conveying impulses to the muscles.

There are two sub-divisions of the nervous system, *Cerebro Spinal* and *Sympathetic.*

The *Cerebro spinal system* is again divided into two parts. 1. The *Central system*, consisting of the brain and spinal cord. 2. *Peripheral system*, which is the fine network of nerves responsible for sensation being carried to the brain and also carries the central impulses back.

The types of nerves are, *Sensory* and *Motor.*

The *Sensory* nerves transmit impulses from the periphery to the centers of sensation.

The *Motor* nerves conduct impulses of motion from the centers to the periphery.

The nerve system may be compared to telephonic communication in an army. The brain represented by the general or headquarters, the spinal cord by the captains of units, the small plexus by the lieutenants and the muscles and skin by the privates. Distress signals are passed from the privates to the lieutenants, who pass them to the captain or spinal cord, who, if they are unable to act upon them, pass them to the

brain or general. Orders are then passed back and acted upon by the muscles and parts.

The nerves given off for the head are known as *Cerebral* nerves, of which there are twelve pairs. Five sets of these nerves receive impressions. The remainder are nerves of special senses. Of the Cerebral nerves there are two of interest to the operator, the fifth or *Trigeminal*, and the seventh or *Facial*. In the following tables these with their branches, if studied in connection with the chart, may easily be followed. All reference to branches with which the operator does not deal are omitted. Generally speaking, the fifth nerve is sensory to the face and teeth, motor to the

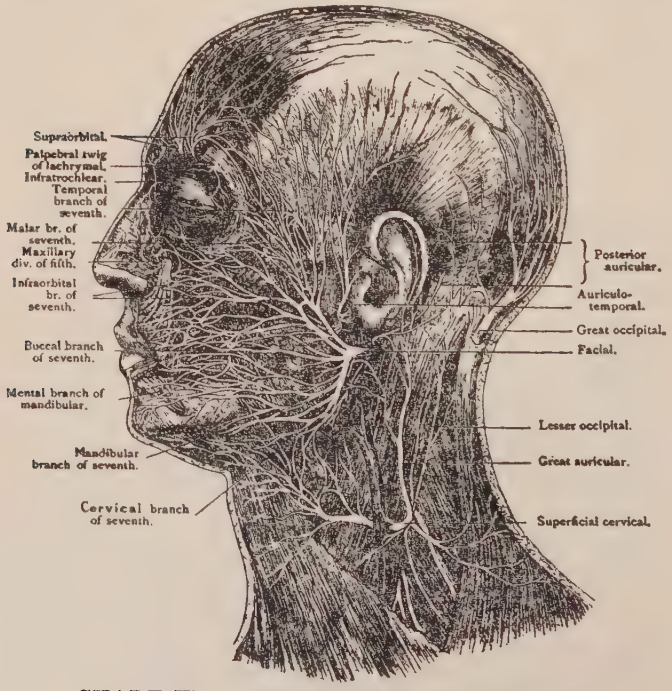

CHART XVI—Nerves of the Head and Neck.

nerves of mastication. The seventh nerve is motor to the muscles of the scalp and face. This is shown in the accompanying table and chart. To further simplify the work, the communicating branches are also omitted.

Fifth or Trigeminal
Sensory to face, teeth. Motor to muscles of mastication.

Opthalmic N.
A sensory N.

Lacrimal
Supplies skin at outer corner of eye.

Supra Orbital N.
Supplies forehead, scalp and upper eyelid

Supra Trochlear N.
Supplies skin at inner corner of eye, center of forehead, rot of nose

Naso Ciliary
Supplies skin at tip and lower part of nose

Maxillary N.
A sensory N.

Malar N.
Supplies skin over Malar bone

Temporal N.
Supplies skin over temples

Infra-Orbital
Supplies lower eyelid, skin at side of nose, cheek and upper lip

Mandibular N.
A motor nerve

- **Anterior Division**
  - Masseter N.
    For Masseter muscle
  - Temopral N.
    For Temporal Muscle
  - Buccinator
    For Buccinator muscle, also sensory to skin of cheek
- **Posterior Division**
  - Auriculo-Temporal
    Temple and scalp
  - Lingual
    Connects with sympathetics
    - Mental N.
      Chin and lower lip
    - Mylo-Hylo N.
      Muscles Under chin

Seventh or Facial N.
Motor to muscles of scalp and face

Posterior Auricular Motor nerve

- **Auricular**
  Supplies Posterior Auricular muscle
- Occipital
  Supplies Occipital muscle

Temporo Facial A motor nerve

- Temporal N.
  Supplies Orbicularlis Oculi, Frontalis, Corrugator Supercili, Anterior and Superior Auricular muscles.
- Zygomatic N.
  Supplies the Zygomatic muscle.

Cervico Facial N. Motor and sensory

- Buccal N.
  Supplies muscles converging toward angle of the mouth, as the Risorius.
- Supra Mandibular N.
  Supplies Triangularis, Quadrati Labii Inferioris and Orbicularis Oris.
- Infra Mandibular
  Supplies Platysma and is the sensory nerve for side of neck

THE CERVICAL NERVES

The branches of the first four cervical nerves supply the back of the head and the neck. These rise from the spinal cord and form a plexus or network on the neck under the Sterno-Mastoid muscle. From this network branches arise as cutaneous branches to the head, neck and shoulders, and muscular branches to the muscles of the neck. The cutaneous branches are *Lesser Occipital*, *Great Auricular* and *Cutaneous Colli* The muscular branches are to the *Trapezius*, *Sterno-Mastoid* and *Levator Scaplae.*

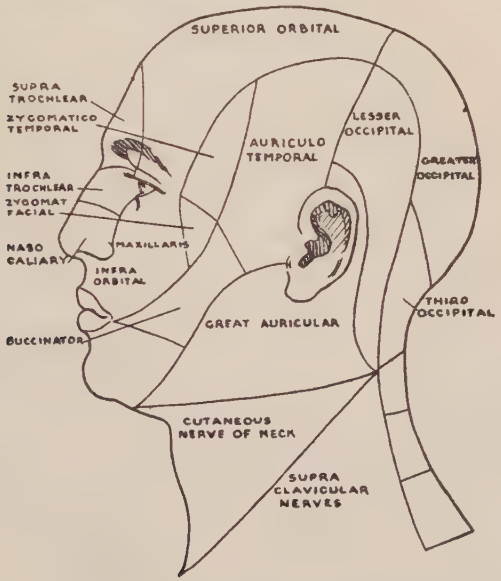

CHART XVII—Cutaneous Nerves.

Cutaneous Nerves—The parts supplied may be seen in the accompanying chart.

The *Greater Occipital Nerve* is the main trunk of the second cervical nerve and passes backward between the first and second vertebrae. This is the chief nerve of the back part of the scalp.

CHAPTER IX

ANATOMY OF THE SKIN

In view of the fact that the skin is one of the most underrated organs of the body, it must not only be considered as an independent organ, but as an integral part of the general economy, with functions interlocking with the so-called vital organs.

The functions of the skin are:

1. A heat regulating organ—this is due to the radiation of heat from the blood capillaries, the exudation and evaporation of perspiration. This perspiration is in turn dependent on exercise of the body, blood supply and atmospheric temperature.

2. An organ of elimination. The skin ranks with the kidneys as an organ of elimination, excreting through the Sebaceous and Sudoriferous glands. There is approximately two pounds of liquid thrown off by the skin daily. It also controls too rapid evaporation.

3. A respiratory and absorptive organ. The respiratory function is of minor importance. The absorptive value of the skin has special advantages and special dangers, as it readily takes up certain drugs, such as mercury and Aconite.

4. An organ of touch—warning of excessive heat and cold.

5. A protective organ. The horny epidermis gives us a resistant, relatively insensate, elastic covering for the muscles and vital organs.

The outer covering of the body is an elastic fibrous structure enveloping the entire body and merging with the mucous membrane at the natural openings of the body. The surface is at first appearance smooth, but upon closer inspection shows fine ridges, pores,

hairs, furrows, etc. The larger furrows are more noticeable on the joints. The pores of the skin are the mouths or openings of the follicles and glands of the skin.

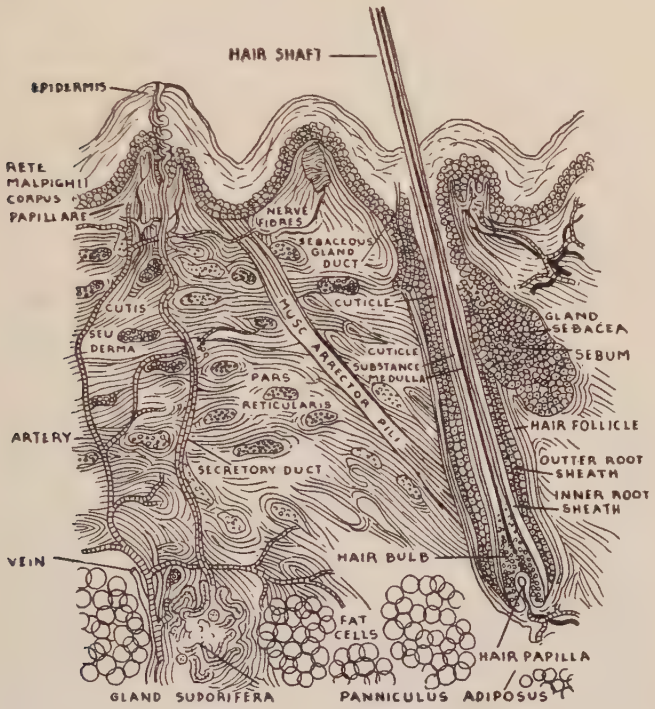

CHART XVIII—Cross-section of the Skin.

In general, the skin is divided into two layers, the Epidermis and the Dermis. The Dermis is then divided into two layers, the Corium and Subcutaneous Tissues. Together with these are the appendages of the skin, the hair and nails. The blood vessels, nerves, lymphatic muscles, their nutrition and functions are also to be considered, as they are involved with the skin proper, both in health and morbid states.

The Epidermis is an outer layer mass of cells held together by a cement like substance.

The Epidermis, which is also called the cuticle, or scarf skin, is divided into four layers. The outer layer, called the Stratum Corneum; a layer not well defined lying just below the Corneum, called the Stratum Lucidum; a granular layer or Stratum Granulosum; Rete Malphigian, or Mucous layer.

The Stratum Corneum is composed of closely packed cells of a dry character, the number of layers of which varies in different parts of the body, the greater number notably on the soles and palms, and the least number on the eyelids. This layer is also called the dead layer of the skin, there being no evidence of life.

The Stratum Lucidum, located just below the Corneum, is composed of glistening, flattened, epithelial cells. It is generally supposed that in this layer, the Rete or Granular cells, must undergo a change to become the horny cells of the Corneum.

Stratum Granulosum, sometimes classed as a part of the Rete, is a very thick layer of coarse granular cells. The uses and chemistry of this layer of skin have never been satisfactorily settled.

Rete Malphigian or malphigian layer is the germ layer of the Epidermis. It may also be called the living layer of the Epidermis, since this is the lowest layer of the Epidermis and the outer layer is dead. In this layer is located the pigment or coloring of the skin.

The Corium, or true skin, consists of granulation tissue with very few fibers, immediately underlying the columnar cells of the Rete, with which it makes a firm connection by small projections called Papillary projections. These bundles of fibrous tissue run parallel to the skin, to which is due the lines of cleavage. In the corium are situated the blood vessels, lymph vessels, gland structures, hairs, muscle elements and nerves. This layer is the fibrous and elastic envelope of

the body, which varies on different parts of the body, also in different individuals. The Corium is divided into the *Pars Papillaris* and *Pars Reticularis.* The Pars papillaris is composed of the papilla or small projections which touch the Rete above and includes the base of the Papilla. In the base of the Papilla are located the nerve terminals and therefore the papilla are more numerous in those portions of the body where the sense of touch is greatest. The Pars Reticularis constitutes the bulk of the Corium and the bundles of connection tissue fiber are larger and coarser.

Subcutaneous tissue contains the fat cells and is practically a continuation of the Corium, with less closely arranged connective tissue, which gradually merges with the muscles and deeper structures. The smoothness of the skin is due to the presence of the fat cells in this layer. When the fat cells disappear either from disease or age, a looseness or wrinkling results. In the subcutaneous tissue are located the sweat glands, nerves and trunks of blood and lymph vessels.

Sweat glands or Glandulae Sudoriferae are seated in the Subcutaneous tissue. They consist of a simple tube coiled upon itself, straightening somewhat through the Corium and between the Papilla, and going through the Epidermis in a corkscrew manner, opening in a funnel-shaped mouth—the sweat pore. The coil proper is the secreting part of the sweat glands.

Sweat glands control in a great measure the temperature of the body, as well as serving as organs of elimination. The perspiration when thrown out upon the skin contains much waste matter with the liquid or water. This water upon drying, by its rapid evaporation, cools the body. This perspiration, under ordinary circumstances, evaporates as rapidly as formed. This is known as invisible perspiration. When, under the influence of heat or exercise this per-

spiration collects in drops, it is known as sensible perspiration. Under normal conditions the body should throw off about two pints of water a day. This elimination is important in that if the perspiration is temporarily stopped, sickness is induced. If completely stopped as by a coating of varnish, the results may easily be serious. The functioning of the sweat glands is controlled by the nerves of the skin, which stimulate the cells of the glands into activity as well as allowing a freer flow of blood thru the arteries feeding them.

Sebaceous glands or oil glands are usually connected with the hair follicle and are seated in the Corium. These consist of a gland duct emptying between the inner root sheath and the outer root sheath. This glandular product, together with the broken down cells, makes up what is known as *Sebum* or Sebaceous matter.

The oil glands excrete a natural oil into the hair follicle, and on the scalp they also have an opening thru the Epidermis. This natural oil is mostly volatile matter, partly solid oils and partly broken-down cells. This Sebum is the natural oil of the scalp, which renders the hair and Epidermis flexible and less penetrable by water.

The skin is the external covering of the body with the five functions heretofore given. It also has the property of becoming thickened by the action of pressure or sutsained light friction. This is demonstrated by the corns on the feet, and callous parts on the hand. These are caused by sustained pressure or friction, the generative cells of the skin building up cells faster than they are worn down. In normal conditions this building up of the cells is not so great and the Epidermis is gradually eliminated, a few cells at a time, so that it is not noticeable.

This elimination is caused by the constant rubbing off of fine scales and wear that the skin is subject to. This dead skin is being constantly replaced by new cells from the corium. Where a blister is formed, a

separation takes place between the Epidermis and the Corium.

QUESTIONS

1. What is the skin?
2. What are the functions of the skin?
3. What are the pores of the skin?
4. Into what layers are the skin divided?
5. What is the epidermis?
6. What is the dead layer of the skin?
7. In what layer of the skin is the coloring matter located?
8. In what layers are the gland structures, nerves and blood vessels of the skin located?
9. Where are the fat cells located?
10. Describe a sweat gland?
11. What is sebum?
12. Where do the Sebaceous glands usually empty?
13. What causes callous or corns?
14. What is the natural oil of the scalp?

The Skin

Epidermis or Scarf Skin

1. Stratum Corneum
   A hard, dry layer of cells
2. Stratum Lucidum
   Cells undergo change
3. Stratum Granulosum
   Coarse granular layer
4. Rete Malphigian

Corium True Skin

1. Pars Papillaris
   The Papillae and base. Nerve endings. Terminals blood vessels
2. Pars Reticularis
   Bulk of Corium
3. Sebaceous or Oil Glands are seated in the Corium

Sub-Cutaneous Tissue

Fat Cells

Sweat Glands

Nerve Trunks
Trunks of blood and lymph vessels

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CHAPTER X

BACTERIOLOGY

Bacteriology is concerned with the study of bacteria, unicellular plants of microscopic size. Classified according to shape, bacteria may be divided into bacilli, rod-shaped organisms, cocci, round organisms, and spirilla, spiral-shaped organisms. Bacteria reproduce by fission or by each cell breaking up into two cells. Theoretically, a single bacterial cell should produce numberless bacteria; actually, the growth and reproduction of bacteria are influenced by the environment, by the food supply, and by the products given off in the process of growth.

Bacteria are present everywhere—in the air, in water, and in the soil. Many act as scavengers, breaking down complex organic matter into simple inorganic substances. Agriculture and many industries depend upon the activities of bacteria. It can thus be seen that not only are many bacteria harmless, but that also, they are necessary for the continuance of life. While there are several thousand different kinds of bacteria, the number that produce disease are, fortunately, comparatively few. Disease-producing bacteria are called pathogenic, the harmless, non-pathogenic.

Bacteria, like other small plants, are very easily killed. Sunlight, heat and fire are physical agents most destructive to bacterial life. Chemical agents, such as carbolic acid, formaldehyde, and salts of heavy metals, such as silver and mercury, are also germicidal (germ-killing). Certain bacteria, under unfavorable conditions of growth, change into spores. These spores are highly resistant to physical and chemical germicides, some resisting a boiling temperature for six hours. Some bacteria, among which the spore-bearers are included, can live only in the absence of air or oxygen; these are called anaerobes. In the treatment of wounds it is important, therefore, to have plenty of

available air, so that anaerobic growth would be impossible.

A communicable disease is any disease caused by bacteria or organisms which may be transferred from one person to another. Among the communicable skin diseases are Pityriasis Capitis, Favus, Ringworm or Tinea Trichophytina, Barber's Itch, Pediculosis Capitis, Impetigo Contagiosa. Especial care should be taken where there is any indication of a communicable disease, in sterilizing everything which might be contaminated. The hands, instruments, head rest, combs, brushes, aprons, linen—in fact, everything which comes in contact with the infected person should receive the closest attention and be thoroughly sterilized. No item should be overlooked, as this one item might easily contaminate other instruments and thus infect another patron. In as much as ANY communicable disease will prevent an operator from working, the necessity of the prevention of infection and necessity of thorough sterilization is apparent.

Immunity might be defined as freedom from infection.

Communicable diseases are caused by bacteria or by closely related organisms. Certain bacteria, such as the diphtheria bacillus, form soluble poisons or toxins. To combat these diseases an antidote, known as an antitoxin, is used. Susceptibility might be defined as liability to disease. A person who is easily susceptible to a disease is one whose natural immunity is low. This may be on account of a weak physique, generally weakened condition thru sickness, overwork, nerve strain or other causes. Immunity or resistance to infection may be obtained: by having the disease itself: by taking preventive injections of antitoxin, as in diphtheria; or by vaccination, as in typhoid fever or smallpox. Immunity obtained by any of these methods is known as acquired immunity; that obtained by virtue of inheritance is known as natural immunity.

A human disease carrier is a person who is immune to the disease, but carries contagious diseases to others.

A common example of this is diphtheria carrier. The throats of these carriers are infected and by coughing, sneezing, etc., they may infect a whole community. These, as well as all infected persons who have a communicable disease, such as smallpox, diphtheria, etc., are quarantined to keep from communicating the disease to others. This quarantine or isolation of infected persons prevents plagues.

The science of bacteriology is intimately bound up with that of sanitation. Health and cleanliness go together. Pure water and food supplies are free from disease-producing bacteria. Dampness and darkness offer favorable conditions for bacterial growth. Personal, like environmental cleanliness, is conducive to good health.

Diseases producing bacteria may be transmitted by 1. unclean hands, 2. towels, 3. combs and brushes, 4. flies, 5. applications if used more than once, 6. unsanitary instruments or surroundings.

There is nothing mysterious about the prevention of disease. Clean homes, clean food, clean hands, clean teeth, clean milk, pure water, fresh air, sanitary waste disposal cost little but will work wonders in preventing disease.

Flies carry germs and should be kept out of the shop and the home. Colds are "catching," and it is your duty not to spread your colds to others. Dirty hands may also spread germs. It is important to wash your hands after every treatment and before beginning a treatment. Do not let any carelessness endanger the health of any of your patients.

It is not only your duty but also to your own advantage to improve your health to the highest degree.

QUESTIONS

1. What are bacteria?
2. What are the three classes of bacteria?
3. How do bacteria reproduce?
4. Into what two classes might bacteria be divided?
5. What is an Anerobe?
6. What is a communicable disease?
7. Name five communicable skin diseases.
8. How may immunity be obtained?
9. How may disease be prevented?
10. Under what conditions should especial care be taken?
11. What diseases should prevent an operator from working?
12. What is a human disease carrier?
13. What is a quarantine?
14. Name five ways disease-producing bacteria may be transmitted?

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CHAPTER XI

HYGIENE AND SANITATION

There is nothing more essential to the operator in Cosmetic Therapy than sanitary conditions. More and more, health departments of the various cities, as well as the state, are adopting regulations in regard to beauty parlors. It is only a question of a short time until there will be a standard in all states. In obtaining a high standard it is necessary that the equipment and furnishings be such that they may easily be kept clean. Nothing is better for this purpose than polished surfaces, without corners, preferably of white, ivory or light grey. In considering the shop, the working booths should be plain. Filigreed partitions and fancy hangings in the working booths are unsanitary, as they are practically impossible to clean. Partitions should be enameled to permit easy cleaning. Curtains should be of white. Door knobs or handles should be of glass or polished metal.

Floors are best of tile, then in their order, finished or painted cement, hardwood or linoleum. These permit of easy and thorough cleaning.

Towel containers of white enameled metal should be used for soiled towels. These should have a cover or other means of closing them.

As a preliminary to sterilization in the shop, a definition of the various terms is necessary.

Public Sanitation is the application of measures to promote public health.

An *Antiseptic* is a substance which prevents the growth of bacteria.

A *Germicide* or *Disinfectant* is a substance possessing the property of killing bacteria or germs.

Asepsis is the condition where there is an absence of living disease-producing organisms.

STERILIZATION is the destruction of germs.

HYGIENE is a study of the best means of preserving the health of the body or the science of health.

INFECTION is the communication of disease.

A DEODORANT is any agent which will correct offensive odors.

FUMIGATION is disinfection by exposure to disinfectant vapors.

Disinfection

- **Physical** — The destruction of bacteria by natural forces such as sunlight, etc.
- **Mechanical** — The destruction of bacteria by mechanical forces such as electric current and filtration.
- **Thermal or Sterilization** — Destruction of germ life by means of heat
  - **Dry Heat**
    1. Flame or burning. Used for destruction of infected clothing and small metal pieces.
    2. Hot Air. Used for glassware and articles which will not scorch.
  - **Moist Heat**
    1. Boiling water. Articles are immersed and boiled.
    2. Steam. By subjecting articles to steam under pressure.
- **Chemical**
  - Solutions. By immersion in the solutions.
  - Vapors — By subjecting to the vapors over a period of time. Also known as Fumigation.

Sterilization may be divided into three classes, namely: 1. Dry heat; 2. Moist heat; 3. Chemical. Dry heat is by means of an intense heat applied for a very short time as when a needle is heated to redness or a lesser heat applied for a longer period. When the lesser heat is used the heat must be sufficient to destroy the organisms. This is accomplished by means of ovens generally. This method is not used universally except in the sterilization of very small metallic instruments. This method is also used for the destruction of infected clothing under some conditions as well as other matter which is combustible and has no value.

Moist heat is quite generally used. This is in use much in the hospitals, doctors' and dentists' offices, etc. This may be accomplished by boiling the matter to be sterilized for a period of time sufficient to kill the bacteria, in water. This is accomplished in the dental offices usually by means of a small electric sterilizer, which keeps the water boiling and has a small tray for immersing the instruments. Moist heat also includes steam sterilization. This is accomplished by subjecting the materials to be sterilized to the action of steam under pressure. This has many advantages in that it may be used for cloth, bandages, etc. It is also more expensive in that it requires specially constructed apparatus. Of the two methods of moist sterilization, boiling is the one most used by the operator. To obtain aseptic metal instruments, they should be boiled for twenty minutes after being thoroughly cleaned.

Chemical sterilization or disinfection is much used in the shops, inasmuch as the other methods of sterilization would soon destroy combs, brushes, etc. Chemical sterilization may also be divided into two classes, namely, solutions and fumes or vapors. At the end of this chapter numerous germicides and the strength they are used in are given. Of these the objectionable features of each might be given. Liquor Cresolis Com-

pound U. S. P., the trade name for which is Lysol, is a soapy cresol compound, the objectionable features of which is the odor. Carbolic Acid requires care in handling even in dilute solutions, as the carbolic acid has a tendency to separate out from the liquid and rise to the top unless it is of the correct strength, which is from one to five per cent. Even these solutions at times have a tendency to separate. For this reason it is ALWAYS better to shake the bottle well containing any carbolic acid. In case of carbolic acid burns, a pure alcohol should be applied IMMEDIATELY. This has a tendency to overcome and neutralize the carbolic acid. Pure alcohol is a good antiseptic but is unobtainable at the present time. Bichloride of mercury causes metallic instruments to rust, and when used on the skin often causes a hardening of the skin. Mercuric Iodide is better tolerated by the skin than bichloride and is also a better germicide on account of penetration. Formaldehyde, the trade name of which is Formalin, is best suited to the needs of the operator. Formaldehyde, when used upon the skin, has a drying effect as well as a hardening effect. This may be overcome to some extent by the use of lotions either containing a small amount of oil or oil and glycerine. The so-called dry sterilizer used in the beauty shop is in reality a dry chemical sterilizer, as the sterilization is accomplished by means of the vapors of formaldehyde. It is best to use a small amount of borax in the dish or container containing the formaldehyde in the sterilizer to aid in the generation of vapor.

A condition of strict Asepsis should prevail in the shop. Your patrons place themselves under your care when they enter your shop for treatment. Every precaution should be taken for their welfare as well as your own. It is only too easy to transmit such conditions as Barbers Itch, Ringworm, the so-called Bob Itch, etc., through unclean and unsterilized instruments.

In certain cities, sterilization of the operator's hands is required. This may be accomplished by the use of

Tr. Green soap and running water. Where there is a suspicion that the patron suffers from a skin disease the hands may be rubbed with a dilute solution of ammonia after washing with the Tr. Green soap, then dipped in a 1 to 2000 solution of mercuric iodide. Different companies place the soluble tablets of mercuric iodide on the market with directions to make any strength solution.

Where it is desired to sterilize the skin of the patron, either the solution of mercuric iodide or a 60 per cent solution of alcohol may be used. The 60 per cent alcohol has a greater penetrating power than 95 per cent, therefore is used more in skin work. After sterilizing, it is well to use a good lotion, as the hands will soon become rough and chapped by the action of the sterilizing solutions. The hand lotion fits this need perfectly.

Styptics are used to stop a minor flow of blood. As a general rule, these are *not* antiseptic. Among the best are *powdered* Alum and *powdered* Monsells Salt. *Do not use the alum sticks or lumps*, but use a small piece of cotton to pick up and apply the styptic, then destroy the cotton. *Never use the same material or swab on two faces.*

Never dip a used piece of cotton or a used applicator into the styptic. Use a clean one.

Where the patron is in a reclining position, the head-rest should be covered. This cover should be changed for each patron and may be either of paper or a towel. This is very important and should be strictly observed by the operator.

The operator's hands and instruments must be sterilized after leaving each patron, before starting on the next. This is very essential.

Loose hair and other waste materials should be burned.

Clean sterile towels should be used for each individual. This is easily accomplished with a cabinet formaldehyde sterilizer of large size. Upon the return of the towels from the laundry, they should be placed

in the sterilizer and subjected to the formaldehyde fumes.

Sterilization of instruments is *best* accomplished by means of steam, or boiling water, but inasmuch as this would destroy some instruments, such as combs and brushes, sterilization may be accomplished with antiseptics and germicides. All combs and brushes must be washed with soap and water immediately after each use. A small amount of ammonia in the water will remove the oil and grease. All hair must be removed before washing. Place in formaldehyde solution and allow to remain 20 minutes. Remove from the Formaldehyde Solution, dry, with a clean towel and keep in the Formaldehyde Sterilizer. This allows clean, sterile working instruments. Other instruments, such as manicure instruments, may be boiled for 20 minutes in water to which a small amount of sodium carbonate should be added. This keeps metal instruments bright. If metal instruments are dipped in a solution of castor oil 2 per cent in alcohol and immediately wiped off with a clean towel, there is less danger of rusting.

Shampoo trays should be washed with soap, scalded and washed with a 37% solution formaldehyde.

To prevent contamination, creams and powders should be removed from the containers with clean, sterile applicators or cotton. In the case of lotions, the amount to be used should be poured into a clean dish or receptacle, and the application taken from this dish. If any is left over, this should be thrown away, not returned to the original container.

A SANITARY shop should have: 1, hot and cold running water; 2, liquid ANTISEPTIC soap; 3, clean, sterile towels; 4, covered containers; 5, movable furniture; 6, disinfectants and sterilizers.

Powders to prevent contaminatian should be kept in a shaker bottle or container and applied each time with a clean piece of cotton.

TABLE OF ANTISEPTICS AND GERMICIDES

1. Lysol—10 per cent for instruments and gloves: Lysol 1½ ounce, water 16 ounces.
   Lysol—1 per cent for the skin: Lysol 5 drops, water one ounce.
2. Carbolic Acid—5 per cent for metal instruments.
   Carbolic Acid—1 per cent for some skins. Others are intolerant. Stir well and shake vigorously.
3. Alcohol—95 per cent for metal instruments.
   Alcohol—60 per cent for the skin.
4. Bichloride of Mercury—1 to 1000 for non-metal instruments: 4 Bernays' tablets to pint of water. Poison.
   Bichloride of Mercury—1 to 2000 for the skin; 2 Bernays' tablets to pint of water. Poison.
5. Mercuric Iodide—1 to 2000 for the skin. Better tolerated by the skin than the bichloride and greater antiseptic properties. Poison.
6. Formaldehyde Solution—4% Solution Antiseptic; 1% Solution as a wash.—40 per cent Formaldehyde Sol. 1 ounce, water 25 ounces, for combs, brushes, etc. If used for metal instruments, ½ ounce of glycerin to the pint of solution should be used to prevent rusting.
7. Ether full strength is a good antiseptic but is objectionable on account of its odor. Also is very inflammable.

For making solutions use:

Five drops to one ounce makes a 1% solution

Twenty-five drops to one ounce makes a 5% solution.

Eight drops to one pint makes a 1 to 1000 solution.

A teaspoonful equals one drachm — an ordinary glass is 8 ounces—a pint is 16 ounces—a quart is 32 ounces—a gallon 128 ounces.

PERSONAL HYGIENE.

As the operator is judged by her appearance, the patron wishing to obtain a well-groomed appearance will hardly return to an operator whose nails are dirty, hair untidy, skin boltched or pimpled, or who has unpleasant body odors. One extremely irritating condition is nasal catarrh. This gives off a very sickening odor, and should be attended to by a physician. Body

odors may be overcome by daily cool, if not cold baths. The teeth should be brushed twice if not thrice daily. Cavities in the teeth give an unpleasant odor to the breath. Have them treated by a dentist.

Oftentimes intra nasal pressure will cause excessive redness of the nose, together with boils, large pores on the nose, and at times oiliness. See a physician whose specialty is nasal troubles.

Every operator should be examined once a year, and under the rules of the Oregon State Board of Cosmetic Therapy must be. Each person, for the benefit of their own health, should be examined once a year by a physician, as in this manner any organic trouble may be discovered and many incipient chronic troubles be overcome.

The rules of personal hygiene as given by the Oregon State Board of Health follow:

AIR.

1. Ventilate every room you occupy.
2. Wear light, loose and porous clothes.
3. Be sure to get recreation outdoors.
4. Sleep in fresh air always, outdoors if you can.
5. Breathe deeply. Use all the lung space you can.

FOOD.

6. Do not overeat. This applies especially to meats and eggs.
7. Eat some hard and some bulky foods; some fruits.
8. Eat slowly and chew thoroughly.
9. Drink plenty of water daily.

INTERNAL AND EXTERNAL POISONS.

10. Evacuate thoroughly and regularly.
11. Stand, sit and walk erect.
12. Do not allow poisons and infection to enter the body.
13. Keep the tongue, teeth and gums clean.

ACTIVITY.

14. Work, play, rest and sleep in moderation.
15. Keep serene. Worry is the foe of health. Cultivate companionship.

Oregon State Board of Cosmetic Therapy Examiners Sanitary Regulations for Cosmeticians.

1. All persons practicing cosmetic therapy as defined must provide a suitable place, equipped to give adequate service to patrons and subject to inspection by the constituted authorities.

2. No shop shall be used for domestic purposes.

3. Walls and ceilings, furniture and fixtures must be kept free from dust and dirt.

4. Floors must be constructed of or covered with impervious materials and be thoroughly cleansed daily. Loose hair must be removed as soon as possible without annoyance to customers or visitors.

5. All waste material must be deposited in covered receptacles and removed daily.

6. Each headrest must be covered with a clean towel or piece of paper before any person is permitted to place his or head upon same.

7. The use on a customer of any article that is not properly cleaned is prohibited.

8. Persons practicing cosmetic therapy or beauty culture, or teaching same, must be attired in clean, washable, coverall outer garments, preferably white.

9. Linens, towels, etc., must be clean, each person having used on them freshly laundered towels or other linens. Each article must be boiled in water of not less than 210 degrees F., dried and ironed.

10. Combs and brushes, the latter preferably of metal and hair bristles, must be scrubbed thoroughly after each using with laundry soap and hot water and covered in a 1/1000 to 1/2000 bichloride solution, phenol or other established and approved germicidal solution, for one hour, removed and rinsed in hot water, dried and placed in a closed container which is full of the fumes of Formalin gas changed daily.

11. Extra precautions must be taken in the cleaning of combs and brushes when used on persons with skin abrasions, pus processes or parasites.

12. Glass or metal articles which cannot be boiled must be cleansed in soap and water, wiped in alcohol and kept in a formaldehyde sterilizer, or immersed in an approved germicidal solution for not less than one hour.

13. Hair clippers, scissors, nippers and buffer covers shall be cleansed in gasoline, benzine or ether after using, re-oiled at workable parts and kept in a sanitary, dust-proof container.

14. Tweezers, files, cuticle looseners and blackhead removers must be thoroughly cleaned in soap and hot water after using, boiled for from five to ten minutes, dried and kept in dust-proof containers.

15. Containers shall be kept clean and free from dust.

16. Apparatus touched by the hands must be wiped with some suitable cleansing agent.

17. Shampoo boards and bowls must be thoroughly cleaned with soap and water after using, rinsed, dried and kept clean and free from dust.

18. Any article dropped on the floor or otherwise rendered insanitary shall not be used until it is sterilized.

19. Every person connected with Beauty, Hair Dressing or Manicuring Parlors, and every masseur and masseuse shall file with the board, annually, a physician's certificate showing him or her to be healthy and free of communicable disease.

20. No operator affected with any form of venereal disease or any communicable disease shall attend any person.

21. Attendants must wash their hands thoroughly with soap and water before attending any person.

22. A lavatory with hot and cold water and liquid soap in a container must be provided for cleansing operators' hands.

23. Clean towels shall be provided for wiping the operators' hands.

24. The use of the common hair brush, comb, powder puff, sponge and neck duster is prohibited.

25. All creams, lotions and other cosmetics used for patrons must be kept in clean and closed containers.

26. Lotions or fluids must be poured into a clear glass or other sterilizable container and applied to patrons by means of cotton or other sterilized applicators.

27. Creams and other semi-solid substances must be dipped from the container with a sterile article or spatula. Removing such substances with the fingers is prohibited.

28. Cosmetics must be removed by means of cotton or gauze pledgets, absorbent soft paper or other sterilizable material.

29. Powders and fluids must be applied by means of cotton puffs which must be destroyed after using.

30. An apprentice is a person being taught part or all forms of service given in the establishment, and shall serve six months of time in actual practice in all work before making application for examination for the purpose of receiving pay for services. Apprentices should register before beginning their apprenticeship.

31. The use of a shop for immoral purposes shall be sufficient cause for forfeiture of a license.

32. Gross continued negligence in observing rules and regulations shall justify the revoking of a license.

33. Gross continued negligence in observing rules and regulations shall justify the revoking or a license.

33. The rules and regulations of the Sanitary Code of the Oregon State Board of Health shall be observed.

Approved by the Oregon State Board of Health.

QUESTIONS

1. What colors should be used in the working booths? Why?
2. What is an antiseptic?
3. What is a germicide? Disinfectant?
4. What is Asepsis?
5. What is sterilization?
6. What is disinfection?
7. Define hygiene.
8. What is a deodorant?
9. Define fumigation.
10. What is meant by physical disinfection?
11. What is meant by mechanical disinfection?
12. What is meant by thermal disinfection? What is the other name for thermal disinfection?
13. What are the divisions of thermal disinfection and how are they used?
14. What is meant by chemical disinfection? Give uses.
15. Give the objectionable features of carbolic acid, cresol compound, bichloride of mercury, formaldehyde.
16. How should the hands be sterilized?
17. What are styptics? How applied?
18. What rule applies to headrests?
19. What is the rule in regard to sterilizing the operator's hands?
20. What is the rule in regard to towels?
21. How is sterilization of instruments accomplished?
22. How do you sterilize combs and brushes?
23. How should loose hair and other waste material be disposed of?
24. What six items should a shop have for sanitary reasons?
25. How should powders be kept and applied?
26. What rule applies to the care of shampoo trays?
27. What six items should a sanitary shop have?
28. How should you handle lotions?

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CHAPTER XII

THE THEORY OF COSMETICS

It is impossible to give formulae for all preparations, as this would require a book by itself. Indeed, there are several books upon the formulae and manufacture of cosmetic preparations upon the market. In reality to the average operator the manufacture of the preparations is not essential, as she has neither the time, equipment nor training to manufacture any but the simpler preparations. Cosmetic manufacture has developed into a science within the last few years. Manufacture of cosmetics should be undertaken only by those having pharmaceutical and chemical training. However, it is necessary for the operator to have some idea as to the construction of preparations. The formulae given herein are not intended as formula for manufacturing, but as a basis for discussion and illustration to show the types of preparations indicated by the text. Only the preparations most used will be taken up.

Among the preparations universally used is Cleansing Cream. Many are the formulae used in the manufacture of this preparation. Also, many wild theories are also advanced as well as wild claims. For a cleansing cream we must have a cream which is as nearly neutral as possible, which will not be absorbed by the skin, not dry to a film upon the skin, that will be light enough to dilute the oils and soil upon the skin and heavy enough to cause this mixture of oils and dirt to be removed easily. For this purpose a correctly made mineral oil cream is the best. Mineral oil is not absorbed, never becomes rancid, is not a drying oil and if the proper grade is used, has no chemical effect upon the skin. Mineral oil for this purpose should have a specific gravity of 860, be odorless, tasteless and have no reaction on litmus paper. There are many

oils upon the market, such as so-called cosmetic oil, which have a lower specific gravity. These are not only useless but are actually harmful if made into creams, as they contain excess acids and the lower specific gravity indicates the presence of undesirable higher hydrocarbons, which may cause irritation and the breaking down of some of the gland structures. If a U. S. P. mineral oil of 860 specific gravity is used, there will be no trouble, and as far as the oil is concerned, a perfect cleansing cream will result. White wax, which is the base of most creams, must also be of a high standard. It is not enough to obtain ANY white beeswax, just so it is white. Many are of no use in the manufacture of toilet preparations. White beeswax should emulsify easily, be sun-bleached, fill the U. S. P. specifications for white beeswax as to fats and fatty acids, resin, limits of free acid, etc. The cheaper grades of white beeswax which are used in the manufacture of the very cheap creams, are harmful to the skin, as they are bleached by chemicals, contain fatty acids and often contain above the limit of free acid. In the manufacture of creams a high grade of purified beeswax is used by the ethical manufacturer. A small amount of borax is usually added to start the emulsification of creams. This slight amount of borax neutralizes the limited free acid, leaving the cream very slightly alakline as it should be for the removal of oils and grease from the skin. The water should be distilled. The odor should be pleasant but compounded of materials which will not irritate the skin. As most of the cheaper odors are coal tar products, as a rule they are more or less irritating. Some aldehydes are also irritating as benzaldehyde, which is an imitation bitter almond odor. The better grades of creams are usually perfumed with the natural flower oils. Very few of the natural flower oils or extracts are irritating to the skin. Therefore, for the best grade of cleansing cream we would have a formula something like the following, the ingredients having the specifications given above.

CLEANSING CREAM.

Mineral Oil .860	550
White wax, sun bleached	150
Borax	10
Distilled water	290
Natural flower oil	5

For the cleansing cream we wish an oil which will not be absorbed. For the tissue cream we wish an oil which WILL be absorbed. For this purpose we use vegetable oils. Or we may use slight amounts of lanolin. Lanolin may not be used for commercial creams, as it becomes rancid on long standing. This rancidity changes the lanolin and the lanolin then has an irritating effect upon the skin. The lanolin to start with must be of an extra high grade. The ordinary lanolin which may be purchased at drug shops is of no use to the cosmetician. Only the purified may be used. The vegetable oils must of necessity be of high grade. Almond oil especially should be of the best. Some manufacturers use in place of almond oil peach kernel oil on account of the price. If the manufacturer is supposed to use almond oil, he should use it, not a substitute therefor. Real almond oil of high grade is nearly inodorous and has a bland, nutty taste. Some unscrupulous manufacturers have taken advantage of the properties of SWEET almond oil and prepared a so-called almond cream, which in reality contains very little if any sweet almond oil, but has as an odor BITTER almond oil. Bitter almond oil contains a large percentage of hydrocyanic acid, which is an irritant and if taken internally in a dose of any size is a deadly poison. Sweet almond oil, on the other hand, is softening and penetrating and is not irritating. Many tissue creams contain lanolin. Lanolin, if purified, is one of the best oils that we have and one of the most penetrating. If treated with benzoin it makes one of the best healing agents for a dry skin that we have. Pure, deodorized lanolin is practically impossible for any but manufacturers to obtain, as it must be obtained in rather large quantities. Therefore, as one

type of tissue cream we might have a formula resembling the following:

TISSUE CREAM

Sweet almond oil	500
Lanolin, purified	30
Spermaecti	70
White wax	100
Water	200
Odor	10

Some manufacturers use a small amount of zinc oxide in their creams to render them white. This is not advisable, as zinc oxide, when combined with creams which are used daily has a tendency to fill the pores of the skin. These tiny plugs, on account of the chemical action of the perspiration, change color and often form blackheads.

ASTRINGENTS are a necessity to the beauty operator and should be to the patron. Astringents are agents which produce muscular contraction, condensation of other tissues and lessen the secretion from mucous membranes. As the creams by their action upon the skin leave the skin soft, the pores open and slight film of oil upon the skin, we have a perfect medium for collecting dirt. As the skin is softened by the action of the creams, the soiling will be deeper. As there is a film of oil upon the skin this film collects dust from the air. By the use of astringents AFTER the use of creams, these difficulties are overcome. The layers of the skin are softened and rendered pliable by the cream and the excess cream may be removed with astringent. The pores which are opened by the cream are rendered natural by the use of the correct astringent.

Astringents might be divided into two classes, vegetable and mineral. As a rule, the mineral astringents are too harsh upon the skin. Among the astringents are alum, lime, alcohol, tannic acid, gallic acid, zinc chloride and other metallic salts, such as copper sulphate, lead acetate, zinc sulphate. The mineral astringents are too harsh for continued use upon the

skin and are of no benefit generally to the operator. Alcohol in diluted form may be used. If used full strength it has a tendency to harshen the skin. One of the dilute forms of alcohol much used is extract of witch hazel. Witch hazel also contains a very small amount of vegetable tannin. Tanic and gallic acids are quite generally used, not in the chemical form but as extracts from different sources. To these are sometimes added benzoin, styrax and other balsamic compounds. As different skins react differently to astringents, they may be made of varying strengths for different classes of skins. As an oily skin will require a stronger astringent than a dry skin on account of the penetration, so will also an older skin of the same class require a stronger astringent. Thus the astringents may be graduated to conform to the different classes of skins. They should also be graduated as to alcoholic strength. Very little alcohol should be used on a dry skin. Under special requirements many other ingredients may be used in astringent compounds.

As a preparation only for removing creams is sometimes used to advantage, a few words on this will not come amiss. These preparations depend upon a slight alkalinity to cut the oils for removal. These compounds are usually very dilute solutions of alkaline compounds of a mixture of the following: Sodium bicarbonate, borax, alcohol, ammonia, aromatic ammonia, boric acid and dilute astringents. These are used for removing the excess oils and waxes of the creams from the skin.

BEAUTY CLAYS are compounds of ingredients that have the power of absorption. This absorption does not necessarily cause a drawing feeling upon the skin. This drawing feeling as the compounds dry is caused by using an astringent which is mixed with the clay and is used for psychological effect. Alum or strong astringents are oftimes mixed with the clay to heighten the astringent effect upon the skin of the siliceous minerals employed in the manufacture of the

clay. The real effects of the clay is the softening power of the mild alkali used together with the absorptive power of the preparation. The following ingredients are sometimes used in the manufactured clays as well as being incorporated with the natural infusorial earths, Fullers earth, kaolin, glycerin, minute amounts of oils, silicates of aluminum, mild alkalies. These are usually made into a paste with distilled water, sometimes with the addition of alcohol to facilitate drying.

HONEY PACKS and similar preparations depend upon their traction upon the skin to obtain any benefit. As honey adheres quite firmly to the skin, when it is patted with the finger tips, the honey adheres to both the skin of the part being treated and to the finger tips, causing more or less of a massage action. At the same time the skin is being massaged by this action more or less of the oils and dirt upon the skin is mixed with the honey compound and thus removed. These honey compounds usually consist of a mild bleaching agent, honey and a diluting fluid such as alcohol, water, etc.

WAXES for the removal of hair depend upon their gripping the hair upon cooling. As they are warmed, they are more or less in a semi-solid state. When cold they are solid. When warmed and in a semi-solid state they may easily be smoothed upon the skin so as to encircle the hair. Upon cooling, as they are in a solid state, the hair is embeded in the solid, and upon removal of the solid from the skin the hair is removed with it. The final action is the same as if the hair were gripped with a pair of tweezers, the only advantage being that the part is warmed, thus loosening any deposit of heavy oils that have accumulated around the hair. These compounds are usually composed of rosin, yellow beeswax, carnuba wax and odor.

BLEACHES for the skin depend upon their penetrating action to the coloring matter of the skin. As this coloring matter is situated in the rete, the bleach

must penetrate this far to have any effect. This may be accomplished by one of two means—a bleaching directly upon the coloring matter by penetration or the removal of the upper layers of the skin. Among the ingredients of the preparations used for direct bleaching action are lactic acid, peroxide, citric acid and some mild alkalies. Those dependent upon the removal of the outer layers of skin are mercury and mercury salts and various chlorides, altho the chlorides are sometimes used under the direct method, strong acids and alkalies, phenol and coal tar derivatives. The latter class of preparations should never be used except directly under a physician's supervision. It will take much longer to obtain results with the former method, but there will be very little accompanying danger if properly compounded and followed by the proper after-treatment the skin will be left in the best of condition.

FACE POWDERS are something of which the average operator seems ignorant as regards the compounds involved. Some ask if there is any lead involved in the manufacture of face powders. At one time in the distant past there may have been face powders containing lead compounds. At the present time no reputable manufacturer uses any lead compounds. The average operator is unable to classify them except as to odor, heavy or light, cold cream or plain and whether they stay on or not. The substances which are usually used in the manufacture of face powders are the following:

1. Starches—Rice or corn, at times potato.
2. Bismuth subnitrate or bismuth oxychloride.
3. Stearates of zinc or magnesium.
4. Talcum—domestic or imported.
5. Kaolin.
6. Kieselguhr.
7. Precipitated chalk.
8. Light magnesium carbonate.
9. Orris root powder.
10. Zinc Oxide.
11. Cloring matter.
12. Perfumes.

The adhesive properties of face powder are obtained by the use of stearates, kaolin and kieselguhr, the best of which is magnesium stearate. These are all harmless. Texture of face powder is obtained by grinding and passing the powder thru a bolting cloth. This bolting cloth is usually of silk and for the better grades of face powder is usually of 120-mesh to the inch. Rice powders of the better quality contain over 50% rice starch, while the cheaper so-called rice powders contain as high as 90% corn starch. Talcum forms much of the bulk in the cheaper powders, but is also employed in lesser percentage in the better grade powders. Zinc oxide is used to give weight and body. Chalk is used in practically only the cheaper powders in place of the bismuth salts. Orris root powder is used to give bulk and light magnesium carbonate is used to make the powder light as well as for absorption of moisture. The compact powders are usually a mixture of chalk, starches and sometimes kieselguhr, together with some binder such as a mucilage to hold them. These are made into a paste which is placed in molds and dried. Cold cream powders are made by incorporating oils with the face powder. These oils give adhesiveness to the face powder but also have a greater tendency to fill up the pores of the skin than ordinary face powder. A medium weight powder is much better for the skin if properly compounded than a heavy weight powder on account of the same tendency as the cold cream powders. A person having a tendency toward an oily skin should be especially careful in the use of heavy type powders, as these increase the tendency. It is much better for the skin to use a medium weight powder ON the skin and use it more often than to use a heavier weight powder filling up the pores of the skin. Good judgment in the selection of face powder will often prevent blackheads and enlarged pores. The cheaper grades of powder containing large amounts of corn starch is also to be decried, as corn starch has a strong tendency to form a paste.

LIQUID POWDERS have fallen into disuse and justly so, as they clog the pores of the skin. These liquid powders used in past generations were in reality a skin whitewash. By the combination of the whitening compound and liquid a deposit was left, not only upon the skin but also in each and every line and crevice of the skin. Lately there has appeared upon the market a number of paste preparations which are known by various names, such as beautifier, paste powder, etc. These preparations are the old liquid powder or whitewashes in another form and fill up the pores of the skin just as bad. They usually consist of zinc oxide, chalk or bismuth salts to give a whitening effect upon the skin, corn starch, oatmeal paste or honey to give adhesiveness, glycerin to prevent their drying out and water for the solution or paste. Occasionally they contain small amounts of oils, which are of small benefit in this compound, as the deleterious effects are due to mechanical action and not to chemical action. At times they may have coloring matter or other ingredients to change the appearance. However, they still depend upon the whitewash effect to obtain the results, however they may be disguised.

VANISHING CREAMS are popularly supposed to contain soap. They do not contain soap in the sense as generally supposed. Vanishing creams are usually composed of saponified stearic acid. Vanishing creams, if they contain no oils, are too drying for the ordinary skins. This may, however, be overcome by incorporating a small amount of almond oil or a high grade of petroleum oil.

LIQUID ALMOND creams are fine emulsions of waxes and almond oil. The almond oil may be obtained from the almonds at the time of manufacture by grinding the almonds themselves or the expressed oil of sweet almonds may be employed. Liquid almond creams as a rule contain a slight excess of alkali, so are usually better adapted to an oily skin. In the bet-

ter grade preparations a small amount of benzoin is also sometimes incorporated.

LIQUID CUCUMBER CREAMS as a rule contain very little cucumber juice, but an extract of cucumber to give odor. They are usually of the same type as the almond creams.

COMPLEXION BEAUTIFIER LOTIONS usually contain either mercuric chloride or ammonium chloride, altho at times lactic acid preparations are used. Preparations containing mercuric chloride or corrosive sublimate should not be used or sold.

HAIR PREPARATIONS are so numerous and there is so much quackery mixed up with them that it would require an entire book to go into details. However, there are certain essentials in scalp work. There is NO ONE preparation that will obtain results in all scalp ailments. The manufacturer who claims that his one scalp preparation will cure all scalp ills is in the same class as the old medicine faker. Disease germs of the scalp vary as greatly as disease germs of the remainder of the body. Scalp treatments depend upon two main items (1) Bringing the blood supply up to where the hair may obtain nourishment; (2) Cleanliness and aseptic conditions, thus giving the hair cells a favorable condition under which to function. The hair cells are as sensitive as other cells of the body and require as favorable conditions for growth. As there are different unfavorable conditions of the skin and scalp to be overcome as well as different diseases of the scalp, the necessity for various preparations may be seen. Most of the commercial preparations found upon the market are useless and some are worse than useless to the operator. It is much better for the operator to take an entire line or system of scalp treatments and follow these thru. She will obtain much better results this way than to MIX HER OWN or use a variety of preparations compounded by different manufacturers. These mixtures of different manufacturers often react unfavorably both chemically and

physiologically. Very often by alternating one manufacturer's preparations with that of another, all benefit is lost thru the one preparation counteracting the benefits of the other. Among the ingredients found in hair preparations are acetic acid, pilocarpine, quinine, cantharides, glycerin, borax, formic acid, salicylic acid, tartaric acid, bay rum, tannic acid, sulphur, resorcin and numerous vegetable extracts and infusions. Alcohol at times appears to be one of the main ingredients even if useless in these preparations.

SHAMPOOS, commercially, are as a rule strongly alkaline. These of necessity must contain some alkali, but the commercial preparations usually contain too large an amount, as they must be able to remove the oils and greases from the head of a person such as a mechanic who is working about oils and has more or less excess oils applied to the head as well as the person whose work is office work in a steam-heated building and whose hair is usually more or less dry. This excessive alkali upon normal or slightly dry hair renders the hair harsh and liable to split or break. The best shampoo is made from a high-grade castile soap. The cheaper grades of castile often contain too much free alkali and too often are made from animal fats more or less. The better grades of castile are made from olive oil, which is more expensive than the animal fats. Some operators having a tendency to laziness prefer these cheaper grades of soap, as they say it does not require so much work and so many applications of soap, which is quite true. There are shampoo bases upon the market now especially adapted to the operator's needs. These, if they do not contain too large an amount of free alkali, may be used. TAR shampoos may be made with any soap. Usually pine tar is saponified with the oils used in the manufacture of the soap.

DRY SHAMPOOS may consist of any powder which has absorbent qualities such as corn meal, borax, starch, orris root powder, sodium sesquicarbonate. They

operate in two manners; one by absorbing the oils from the hair, the other by being slightly alkaline and forming more or less a soap compound by their interactions with the oils of the hair.

SNOW WHITE for bleaching yellow stains from hair and especially for permanently waved hair may be compounded from oxidizing compounds. Usually yellow stains, unless they are developed by burning the hair, may be removed by chemical action upon the color. Usually this yellow color is more or less due to the incorporation of sodium compounds in the permanent waving pad or fluid. These may be changed by using a compound after the following:

Sodium bicarbonate—4 drachms
Glycerin—4 drachms
Water enough to make 4 ounces.

This preparation should be applied to the hair while the hair is still warm after the permanent steaming process. We have been told that the application of pure alcohol also reduces the stains especially from white hair, altho we have never tried it. Another method is the application of salt and ammonia.

DARK ANTISEPTIC OILS for use in treating infected scalps are usually composed of a blend of oils. These should contain non-irritating germicides together with a blend of the following oils: Almond oil, olive or rape seed oil, crude oil, kerosene, very small amounts of turpentine, castor oil, camelia oil, together with a small proportion of mineral oil. At times Stockholm tar is also added. By varying these oils and the antiseptics combined with them, the hair may be supplied with an excess of oil or part of the oil be removed from the hair thru dilution and consequent shampoo.

MENTHOL TONICS are stimulative, toning, cooling and pleasant. It is necessary to use a compound having a relatively high percentage of alcohol to hold the menthol in solution. If this is compounded with antiseptics and chemicals having drying properties for the skin, we have a preparation for oily hair.

CALAMINE LOTION.—Very often it is necessary to have a preparation around the shop that is soothing and healing. For this purpose many use Calamine Lotion. This acts as a coating or whitewash for the skin. As calamine lotion formulae may vary considerably in different localities, a formula is given which may be filled at the corner drug store.

Powdered Calamine—2 drachms
Zinc Oxide—2 drachms
Carbolic acid—20 drops
Lime water—1 ounce
Distilled water—3 ounces

For use on irritated skins, sunburn, poison oak.

Saturated SOLUTION OF BORIC ACID is much used where the therapeutic lamp is used upon the face. This may be made by dissolving two ounces of boric acid crystals in 32 ounces of distilled water and filtering.

LEMON RINSE SOLUTION FOR THE HAIR

Citric Acid—Two ounces.
Talcum—One ounce.
Oil Lemon—30 drops.
Water—One gallon.

Mix the talcum and oil of lemon until no oil of lemon is seen. Dissolve the citric acid in the water. Add the water to the talcum a little at a time, stirring well. Filter. A tablespoonful of this solution is equal in strength to one-half a lemon.

SCALING PASTE—Many operators are yet using iodine tinctures and solutions for painting the scalp. This is out of date and in many cases dangerous. There are many preparations which more or less loosen and dissolve the dead cuticle upon the scalp without injuring the scalp, hair or hair texture, and without danger of poisoning. According to medical authorities, more scalps are harmed by the so-called iodine peeling process than are benefited. Most any standard dermatological work will supply a formula for a preparation along the lines of scaling paste. It is much better, however, to have a manufacturer of cosmetics or a chemist compound these, as care must be exercised in compounding.

SCURF POMADE, as referred to in this work, is an ointment compound of high germicidal action. The germicide must be compatible with the oils and it is much better if they are soluble in the oils. Scurf Pomaed being an ointment and applied directly to the scalp, obtains its chief action thru close contact with the skin. The ointment forms a film upon the scalp, of germicidal compounds. This film of oils are more or less liquified by the heat of the body and being heavier than oils, hold their location. This film of oils has a tendency to soften and loosen crusts and scales upon the skin, thus rendering their removal easy.

BREUNE TONIC, as referred to, is a stimulating tonic. A stimulating tonic should cause a greater flow of blood to the part without being detrimental to the skin. Among the chemicals sometimes employed in dilute solutions for this purpose are formic acid, cantharides capsicum, mild antiseptics.

REJUVENATOR TONIC, as employed in this work, is a preparation to temporarily check falling hair conditions until the skin and tissues may be brought back to normal. Among the chemicals employed in preparations of this type are: Pilocarpine, quinine, cinchona bark extracts, mild antiseptics and at times gentle stimulants.

SNOWHITE, a preparation used to remove yellow streaks from white hair. It is composed of

17 volume peroxide	4 ounces
75% alcohol	4 ounces
Glycerin	1 ounce
Baking soda	1 ounce

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CHAPTER XIII

MASSAGE

CHART XIX—Directional Contraction of the Muscles of Head and Neck.

Massage and how it should be accomplished might well be the subject of a large book, if all the numerous ways and means of massage were treated. At the present time there appear to be numerous methods of massage, but all, if correct, follow the blood supply and muscles and nerves. These, if properly executed, give soothing, stimulative or sedative effects. The movements are known as, 1. Effleurage or stroking

movements; 2. Friction or deep rubbing; 3. Petrisage or kneeding movements; 4. Tapotement or tapping.

Effleurage is used especially to obtain sedative effects on the nerves. Friction or deep rubbing, to force a free supply of blood from the arteries. Petrisage or kneeding movements, to stimulate the muscles and nerves. Tapotement for its sedative effect as well as forcing a free flow of lymph and a flow of blood through the fine arteries and capillaries. Heavy movements are stimulative. Light movements are soothing. Therefore, massage should end with the light movements.

Massage, if properly executed, increases the blood flow, therefore increases nutrition to the tissues and muscles, increases the flow of lymph and venous blood, which removes the waste and increases the activity of the glands and vessels with its action on the nerves.

Massage to obtain benefits commensurate with the efforts expended should be given regularly. One massage will show some benefits, to be sure, if for no other reason than a thorough cleansing of the skin. It is impossible, tho, to cause a free flow of the secretions in one massage. Generally, when a patron wishes an intermittent massage, the pores of the skin are clogged, the glands are congested with secretions and waste materials and the skin as a whole has lost its tone. To overcome this condition, which has taken months if not years of neglect to cause, in one operation is manifestly impossible. The ducts from the skin are clogged not only upon the skin, but also under the skin. This may be loosened in the first operation and party expelled. But to thoroughly cleanse these ducts and allow a free flow, it is necessary to empty and cleanse the ducts out. This is accomplished by forcing the glands to function. This is in reality exercise, not only for the glands, but also for the surrounding tissues. If a single massage is given, it is much like taking a long, hard hike. The muscles after a long hike are exercised once, but it takes a repetition of that hike numerous times to develop the muscles used. If the

one hike is taken at intervals of six weeks, the muscles do not develop, but become tired easily. If the same hike is accomplished twice a week, at the end of two months the muscles and tissues have developed to such an extent that no strain is felt. It is much the same with massage. At the first massage the muscles and tissues have had no exercise. Therefore, the glands and ducts are placed under somewhat of a strain in being forced to function. If this slight strain is continued at regular intervals of every two or three days, allowing the tissues to recuperate, the tissues will in a short time develop to take care of this strain. If continued for a period of eight or ten weeks, the tissues have developed to normal and is functioning properly. If massage is now reduced to once a week or ten days, the skin will in all probability, continue to function, if the remainder of the body is in health. It is to be understood that the system in general has a direct action upon the permanence of the results, as well as habits. If a patron continually squints the eyes, massage will eventually overcome the wrinkles caused by this, but as soon as massage is discontinued, if the squinting of the eyes is not discontinued, the wrinkles will soon appear again.

Before starting the massage, a few words in regard to necessities of the operator. The operator should be as cleanly and attractive as possible in a protective dress or apron of white material. The hands should be aseptically clean. The operator's nails should be manicured and the free edges short enough so they will not scratch the skin. The operators should be free from body odor as well as fetid breath, as she is continually working over the patron. A reclining chair should be used, placed so the operator has light upon the patron. This light should be sufficient to work by and yet placed so the light will not shine directly in the patron's eyes. The reclining chair should have leather cushions, as these are easily cleaned, and be adjustable from a sitting to a reclining position. The head rest should be adjustable, not only for the pa

tron's benefit, but also that the operator may work upon the patron's neck. A small table should be placed at the right of the operator with the preparations to be used. A spatula or paddle should be used to remove the cream from the jars instead of dipping the fingers into the jar. The head rest should be covered either with a clean towel or with paper for that purpose.

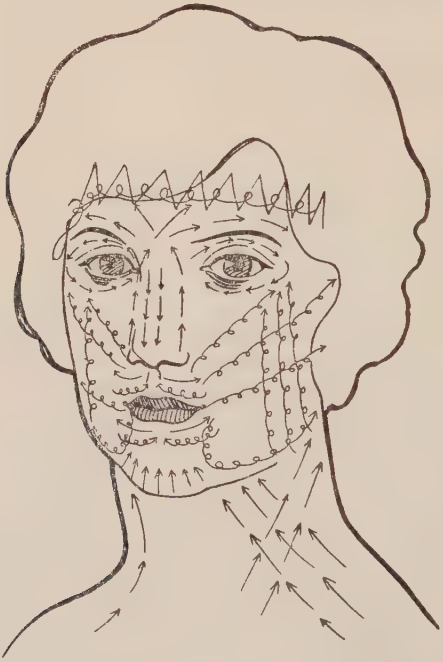

CHART XX—Plain Facial Massage.

Plain Facial Massage

First, make your customer perfectly comfortable in a reclining chair and ask her to relax quietly. This is important, for your customer must place herself entirely in your hands. Spread your hair cloth. Loosen dress at neck and tuck under. Use a towel to bind up the hair. Now apply Cleansing cream. Rub it on

sparingly over the entire face, then pat it on with the finger tips. If the skin is harsh or dry, use the skin cream in place of the cleansing cream.

1. Then, using the first two fingers of each hand, use the shuttle movement, working from the hair line to the eyebrows. Start at the left side and work to the right, using the movement five times and covering the temples so as to touch the Temporal nerve with a slow circular movement and return. Now cover the same area three times with a rotary movement, the muscles of the forehead moving under the finger tips, *not* the finger tips sliding over the skin. This strengthens the Frontalis muscle which covers the forehead and, with an intervening tendon covers the scalp. When this muscle relaxes deep lines appear on the forehead.

2. Then, using only the second finger of each hand, massage upward, first with one hand, then with the other, from the base of the nose to the scalp, the line of massage crossing as they reach the Occipito frontalis muscle. Use this movement eight times. This helps to eliminate the frown lines from between the eyebrows. Corrugator, Caput Angulare.

3. Now, fingers together, go between the eyebrows upward, over the eyebrows and past the temples, five times. This works on the Corrugator Supercili muscle, which causes the lines between the eyebrows. Now, with the second finger of each hand, press on the Supra Orbital nerve, at the inner corner of the eyes. Pass the fingers slowly over the upper eyelid, then with a light rotary motion return under the eyes and back to the starting point. Repeat this movement five times. This works on the Orbicularis Oculi muscle around the eyes and helps to eliminate crows feet.

4. Now draw the fingers with a stroking movement over the eyelids, starting from the nose and spreading as they come to the outer part of the eye, drawing together again as they reach the temple. This relieves the fine lines at the outer edge of the eyes caused by squinting or eye-strain.

5. Rotate gently *down* the bridge of the nose. Procerus and Nasalis.

6. Start at the point of the jaw just below the ear and rotate toward the outer corners of the eyes. Masseter muscle.

7. Lower part of the ear to hair line at temples.

8. Corner of mouth *down* to jaw and up the mandible to ear. Triangularis.

9. Corner of mouth to ear. Risorius and Buccinator.

10. Corner of nose to temple. Caput Zygomaticus and Zygomaticus.

11. Corner of mouth to corner of eye. Caninus.

12. Stroke the lips, one finger on each side of the mouth from the center toward the corners, upward. Orbicularis Oris and Risorius.

13. Cover the same area using rotary movements toward the center. Oris.

14. Straight movements from chin to mouth. Mentalis and Quad. Labii Inf.

15. Same area as in 13, by kneading.

16. From Clavicle to jaw on a line with the corner of the mouth. Slight pressure at junction of the head and neck. Platysma.

17. From Clavicle to mastoid bone. Sterno Mastoid.

18. From Scapula to Occipital bone on the opposite side, pressing on nerve divisions down the spine to fifth vertebrae, sliding *out* on the shoulders and repeat. Trapezius.

19. Now, using a cotton pad or cleansing paper, saturated with a solution[1] which will cut the oils of the cream you are using, cleanse the cream from the face, using a semi-circular motion *up* and back. After the removal of all cream from the face, apply a facial finish[2] which will tone the skin and act as an alterative. A light coating of cream may then be applied, then rouge and lastly the powder.

VIBRATORY FACIAL

Vibratory facials originated in Sweden, and since their use by Ling and his associates, were adopted with innovations in practically every civilized country. At the present time there are numerous systems, called by various names, derived from the movements originated by Ling. Physicians from every civilized country studied and worked under this master. Each student, upon his return to his native land, has naturally added something to, as well as subtracted from the original work. In some of the systems practically all that remains is the vibration. These are variously termed muscle strapping, face moulding, English facials, etc.

The Vibratory facial is a vibration on the nerve divisions and muscles in a definite rhythm. This tones up the muscles, stimulates the nerves, forces a freer flow of Lymph, and thus aids in the elimination of wrinkles. Tissues may be aided in building up or fat cells broken down, according to the mode of application. The rhythm varies in three phases: First, 25 to the minute; second, 15 to the minute; third, 300 to the minute.

A muscle that is over-developed should be touched very lightly. If there are very few fat cells surrounding the muscle, the cup vibration at 300 should be emphasized, omitting the muscle. On the other hand, a muscle which has atrophied and is surrounded by a heavy deposit of fat cells should have a heavy vibration of 300 with the fingers flat.

In working with a patron who is extremely nervous, the Thermolite with the red lens should be applied at the start of the manipulations. The vibrations per minute should be cut from 25 to approximately 12, being careful though to *not* drag the skin.

In movement twelve, care must be exercised. The pull should be a straight pull and steady. The relaxation of the tension should be the same. Most students at the beginning, make the mistake of releasing the pull too quickly. This jars the nerves of the patron.

Apply a transparent cream[3] to the face, which is entirely neutral, both as to alkalies and effects of the perfume, with a patting action, covering the entire face. Remove with cotton and the lotion[1] which will cut the oil, using a semi-circular motion. At no time in removing creams from the face should an entire rotary motion be used. If the skin appears dry and harsh a tissue cream[4] should now be applied, and the Thermolite applied for ten minutes, after covering the eyes. This treatment is very effective for relaxing the patron, as well as for dry skin. The excess cream should then be removed with the paper or cotton and vibratory[5] oil or muscle oil applied, by patting. The manipulations may then be started.

After the manipulation, remove the oil with the lotion[1] used for that purpose, using the semi-circular motion toward the hair. Apply the facial finish to the face, patting in lightly. If the face is oily and inclined to large pores, a special astringent[6] for large pores should be used first, followed by a liquid cold cream[7], which is slightly alkaline in character and made from pure oil of sweet almonds, then the rouge and finally the powder.

For the rouge after a facial, either a paste rouge[8] or an ointment rouge[9] will be found better than the powder rouge. These require some art in applying, but the added smoothness and velvety appearance of the patron's skin is well worth the time expended in learning to apply them.

After the application of the powder and before releasing the patron, be sure to use the eyelash brush and remove all powder clinging to the eyebrows and eyelashes.

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CHAPTER XIV

FACIAL TREATMENTS

The care of the skin in health is of the utmost importance. As the old adage has it, an ounce of prevention is worth a pound of cure. The person taking care of the skin, while they have a good skin, will be amply repaid. The normal healthy skin requires the use twice daily of a GOOD cleansing cream followed by a lotion to remove the excess oils. This should be followed by an astringent that suits the individual skin. A very light powder base may then be followed by a medium-weight powder. Rouge should be applied to the skin and spread evenly but NOT rubbed in. For night use the cleansing cream should be followed by a tissue cream. Tissue creams vary considerably and are known under various names. Some contain a larger amount of oil than others. Indeed, there are some creams upon the market for very dry skins that do not contain any wax at all, but are heavy emulsions of oils. These are excellent, as a rule, for very dry skins, as they are more readily absorbed than the ordinary wax bases. The tissue creams should be massaged into the skin with an upward and outward slightly rotating movement, following the lines as laid down under massage movements. Excess cream should be removed either with tissues or a soft towel. Never allow an excess of cream to remain on the skin over night, as this excess collects grime and counteracts much of the benefit derived from the use of the cream. To keep the skin of the face and neck in the best of condition, a correct facial massage should be given approximately every two weeks. At this time corrective preparations to counteract any tendency of the skin to become unsightly should be used. The average skin should never be touched by soap and water, as an alkali such as soap increases the dryness of the skin and

also increases the tendency towards wrinkles. Authorities tell us that 80% of the population have skins that have a tendency toward dryness. This dryness may be overcome by the application of the proper oils which are incorporated in creams, etc. When the skin appears a bit sallow, a bleaching or freckle cream applied a few times instead of the tissue cream will overcome this. Where there is an oily, coarse skin, the judicious use of a good soap and water cleansing combined with the former treatments may be used to advantage. As the coarse, only skins are usually the ones upon which pimples and blackheads are found, soap and water is indicated upon these. When on an outing more care should be exercised upon the care of the skin than under ordinary conditions. A finishing cream having a small amount of oil incorporated may be used to advantage in warding off sunburn. Be sure to use tissue cream and some oil for a night treatment after thoroughly cleansing the face. Be careful in your selection of powders and rouges.

WRINKLES—Wrinkles are no longer a sign of age but rather a lack of care of the tissues involved. This does not mean the lines of expression, but those wrinkles which resemble crepe paper upon the skin. Wrinkles are caused either by (1) Relaxation of some muscles, with corresponding over-development of others; (2) Loss of fat cells; (3) Lack of nourishment to the skin, or (4) Abuse of the skin, either by undue exposure to the elements or by the use of chemicals. These chemicals may be from the use of harsh soaps or indifferent chemicals.

On the skin with crepe paper effect, all astringents except an astringent especially adapted to this should be discontinued. This astringent should have a stimulating effect upon the skin as well as an astringent action. Tissue cream or a wrinkle cream to aid in filling out and tightening up the loose folds of skin, cleansing cream to cleanse, a very penetrating cream or a facial oil for the dry condition and a mild lotion to re-

move the oils are necessary for home use. For shop use practically the same preparations are indicated. The facial should be started with the cleansing cream and after the face is cleansed, the excess cream should be removed with the lotion. Tissue cream and facial oil may then be applied. If the skin is very dry, a more penetrating cream for dry conditions of the skin may be used in place of the tissue cream. These preparations should be patted into the skin and the therapeutic light then applied. The facial massage is then given, with especial attention given to the undeveloped muscles. After the massage movements, the cream is removed with the lotion and astringent applied. Finish as in other facials. Every other facial the wrinkle cream should be applied to tighten up the loose skin. For home use, the wrinkle cream should be applied twice weekly.

Wrinkles may be caused by lack of use of the muscles. When first operated upon, the massage should be light. At each succeeding facial, the massage pressure should be increased, but never enough to cause soreness. A patron after a massage should feel refreshed and stimulated. Wrinkles just developing respond readily to treatment. Those of long standing require a greater amount of effort and do not show results quickly, as the regeneration of the tissues must be done by the body, with the operator's assistance. Do not promise definite results in the treatment of wrinkles without any follow-up treatments. Treatment at least every ten days is a necessity as a follow-up treatment.

FRECKLES or LENTIGO are the result of exposure to sun or wind. The pigmentation of the skin is drawn up into yellowish or brown spots, varying in size from a pinhead to a pea in the rete. Those having light hair and more especially the different shades of red, appear to be favorite subjects. The freckles may be readily removed, but upon exposure always return. Their return, however, may be lessened by preventative

measures. In the removal of freckles, it is necessary either to bleach or scatter the pigmentation. Usually a combination of both methods is used. For shop use, if a liquid bleach is used, it is usually combined with a powder pack to make a clay for applying. This heightens the effect and action of the liquid upon the skin by keeping it applied directly to the skin during the application of the pack. After the pack has dried, it should be removed with warm water. A light application of a good tissue cream or penetrating healing cream should be made and gently massaged in. The excess cream may then be removed with the lotion and the face finished as in a facial. The patron should have a freckle cream or bleaching cream for home use. This should be applied in place of the tissue cream as given under the care of the skin at the beginning of this chapter. An application of the finishing cream together with the darker shades of face powder will aid materially in warding off the recurrence of freckles if worn when subjecting the skin to sunlight. The bleaching process treatment should not be given more than twice a week. If the skin appears irritated or roughened, the treatment should be discontinued, and the regular routine for home care used for a few days until the irritation is allayed when the treatment may then be continued.

The lessening or removal of freckles is a process which is practically continuous unless great care is exercised in exposing the skin to the sun. With due care, however, the freckles may be made to disappear, and if not totally, at least so they are not noticeable.

TAN—Use same process and method of treatment as for freckles, as tan is also a pigmentation of the skin, but instead of the pigmentation being drawn into small spots, is evenly spread.

SKIN BLEACHING—The same process is used for sallowness of the skin with the exception that the bleaches employed should not be as strong as for tan

or freckles. Usually they should be used over a longer period of time to obtain results. Skin bleaching is useless when the sallowness or yellowness is caused by systemic troubles as in yellow jaundice. Cases of systemic trouble should be under the care of a physician as external treatment is useless. Skin bleaching may only be resorted to for yellow or sallow conditions caused by sunlight as when a tan is disappearing.

LIVER SPOTS or SYMPTOMATIC CHLOASMA—Liver spots appear as variously sized, yellowish brown pigmentations of the skin. They may be caused by an external irritant or as a consequence of various systemic diseases, such as tuberculosis, cancer, malaria, syphilis, etc. The treatment naturally falls within the province of the physician.

BLACKHEADS or COMEDONES—Blackheads are pin-point, blackish or dirty grey plugs in the openings of the sebaceous glands. Blackheads are frequently associated with oily skins and when infected develop into acne pustules. One of the main factors appears to be disorders of digestion. The patron should be told to take a mild laxative in order to throw off the intestinal troubles. If a severe intestinal trouble is encountered the services of a physician are essential.

In treating blackheads or oily skin, care should be exercised in the diet. Rich or greasy foods, especially fried foods should be avoided. Fruits and vegetables should be a large proportion of the diet. Daily bathing of the entire body aids in the elimination, and if followed by a brisk rubbing, will increase the circulation and often aids in returning the action of the glands to normal. Constant care is a necessity, as a hit and miss system will not obtain results.

If the skin is exceedingly oily, soap and water may be used to advantage. There are a number of soaps upon the market which are slightly alkaline, but not exceedingly so, and which are also germicidal. Among these are Germicidal soap 1% and the mild resorcinol

soaps. Cresol Compound soaps should not be used. Liquid cleansing creams, if slightly alkaline, are preferred to the plain cleansing creams, as they do not contain quite so high a percentage of oil. A lotion for removing oils and grease from the face is essential. A penetrating antiseptic cream should be used in place of the tissue cream for home treatment as well as the shop treatment. A special astringent for oily conditions of the skin should be used, as the ordinary astringent for normal skins will not have enough reaction.

For the shop treatment the skin should be cleansed with the liquid cleansing cream and all dirt and dust thoroughly removed. Apply the solution for removing the oils aud grease from the face to the areas to be treated and while still moist apply a hot towel. Moisten the spots with dilute alcohol and remove the blackheads. The skin should not be pinched but pulled to remove blackheads, as the pinching sometimes ruptures the glandular walls. A sterile towel should be placed between the operator's fingers and the face. Blackhead extractors may also be used when properly sterilized. As soon as the face feels dry, stop the operation and apply the penetrating antiseptic cream, driving it in with the thermolite. Do not remove too many blackheads at any one time or in one small space, as soreness of the tissues will result. Give a deep massage, using the high frequency current. Remove the excess cream with the lotion for that purpose and apply the special astringent for oily skins. Now apply just a little of the liquid cream for a powder base and finish the make-up.

For home treatment the antiseptic cream is used in place of a tissue cream, liquid cream in place of the cleansing cream and a special astringent.

LARGE PORES—Large pores are generally the result of over-active oil glands, together with a relaxing of the tissues. Vigorous massage is indicated as often as every other day, until improvement is shown. All creams except a liquid cream should be discon-

tinued as large pores and blackheads are essentially the same and require the same treatment.

OILY SKINS, as large pores, blackheads and oily skins are practically synonymous, the same treatments are used for all.

VERRUCA or WARTS—A wart is a small epidermal growth which may be soft or hard. Warts vary greatly in size and shape. While they are usually found upon the fingers and hands, they occasionally are found upon other parts of the body. Warts vary greatly in character and are thus classified by medical authorities.

The one most often noted is known as Verruca Vulgaris. This is generally about the size of a pea, spreading slightly at the base. It is generally hard, elevated and slightly rounded. According to the observations of Stelwagon, Bronson and others, there is an acceptance that warts are mildly contagious. No definite germ was isolated, but in numerous cases the wart was reproduced by inoculation. There is no doubt that pressure, bruising, etc., contributes opportunities for the inoculation. Some authorities even consider this the cause of warts. Warts, as a rule, have no indication as to the general health. They are, however, a disfigurement. The universal treatment with which the best results are obtained is electrolysis. The growth is transfixed with the needle attached to the negative cord, the positive electrode being grasped by the hand of the patron. The current, varying from one to five milliamperes, is allowed to act from thirty seconds to two minutes, according to the size of the wart. If the growth is large and old, the needle should be removed and reinserted to cross the first insertion. In many cases by adjusting the high frequency to the hot point and using a very hot spark for a few applications, the wart may be caused to disappear. This may require several treatments before the wart begins to shrivel. Great care should then be used so no infection may be started.

CHAPTER XV

SKIN DISEASES.

In skin diseases, the operator is concerned as much with what troubles she may not benefit, if not actually aggravate by attempted treatment, as she is in knowing what she may treat. A simple rule to follow is *do not attempt to treat any trouble when you do not know what it is.* This is especially so where there is an apparent ulceration. Most cases of skin trouble might be tagged "*Physician's Private Property—Keep Off!*" However, there are some cases where the operator and physician work in harmony. Very few physicians have the time or inclination to shampoo a head or apply treatments to the subject, but rather allow the patron to attempt this. The patron usually makes more or less of a mess of this. This is the time at which the operator's services are of the greatest benefit.

At the same time, there are some cases the operator, on account of persistent treatment, may obtain beneficial results. Among these are Acne and Milia. However, the student or operator, after a few successes with these treatments, should not consider herself a physician but as an aid to a physician.

ACNE

Acne Vulgaris is the bane of more than one patron. Usually the patron has exhausted every source of knowledge she has, as well as tried everything suggested by sympathetic friends and relatives before entering the shop for treatment. In practically all cases, these arrive at the shop in a state of mind and attitude which plainly says, "I've done all I can. I don't think you are able to do anything for me but I'll let you try." The first thing to do is attempt to change the patron's outlook to a more cheerful one. Physicians

as a rule are too busy to bother much with the milder cases. These are the ones on which treatments should be instituted. If allowed to continue, the appearance grows repulsive, the subject grows morbid over her appearance and in all probability buys every patent medicine that is recommended to her as well as some that are not. Hardly ever are the services of a physician attempted, the subject not considering the trouble systemic. The subject should be advised to seek the services of a reliable physician, as the causative factor may be any one of numerous systemic troubles, such as digestive disturbances, constipation, general run-down condition, menstrual irregularities, etc. External factors such as working in a dusty atmosphere or infrequent cleansing are not infrequently a cause. In most cases Acne is associated with Comedones or Oily Seborrhea. These all together lead to the one thought, that anything which tends to block up the gland ducts has a direct bearing upon Acne. Among the substances causing this trouble thru the stomach and intestines might be mentioned alcoholic drinks, excessive use of tea and coffee, indulgence in indigestible foods, too great an amount of pastries, rich candies, etc. Another potent factor is overindulgence in tobacco.

Two points to remember in the treatment of Acne are: 1. Women with mild cases are often relatively free from Acne between the menstrual periods, but just before and during the period a fresh outbreak may be expected. As treatment progresses, these attacks subside. 2. If due to menstrual irregularity, there appears to be a tendency for the eruptions to appear around the mouth and chin.

Acne is an inflammatory disease of the sebaceous glands, commonly making its appearance between the ages of thirteen and thirty. The eruptions are usually pinkish, occasionally dark red pustules, in the center of which a comedone commonly appears. The skin in many cases has a dirty, greasy appearance accompanied by enlarged pores. When the pustule is pressed a

pustular mass is expressed, and if pressure is deep and sustained enough, there generally appears a small, hard mass resembling a core, after which a bloody water appears. After the course of a few days, this pustule disappears, but numerous other lesions have made their appearance. Thus, if treatment is not instituted, the disease continues. When treatment is instituted, these eruptions usually clear up within the course of a few months if the treatment is conscientiously followed.

Treatment: Both systemic and local treatment are necessary in most cases. In mild cases, where the patron is very near maturity and there is a tendency toward a natural disappearance of the trouble, local treatment alone is all that is necessary. As before stated, the services of a physician for systemic troubles are essential. Plenty of outdoor exercise, bathing and hygienic factors are essential. Diet should be regulated, rich foods, coffee, tea and alcoholic drinks being prohibited. The patron should bathe every other day in an Epsom Salt bath, three pounds of Epsom Salts to the tub of water. The skin should be rubbed briskly after the bath with a coarse towel. If the hair is oily, a shampoo every week with Tr. Green Soap should be given. If the skin appears especially greasy, Tr. Green Soap may be used for washing the face. In cases where the greasiness is not so apparent, a 1% Mercuric Iodide soap, which may be obtained at any dispensary, may be used for washing the face night and morning, followed by a light application of Sylvan Cream at night. In the mornings, a light lather of the soap should be rubbed up on the face and the face steamed with a hot towel for five minutes. This may then be removed and the Acne Special applied and allowed to dry on, after which a light application of powder may be made. If the powder does not adhere well, Antiseptic Cream may be used. If the infection is on the body as well as the face, underwear should be changed daily, and after washing should be rinsed in boric acid solution and allowed to dry.

Shop Treatment.—Clean the entire face with a transparent cream which is not irritating. Remove the cream with a *Lotion*[1] which will remove the oil. Apply three hot towels to steam the face. Use sterile instruments, and after sterilizing the skin, open the eruption, express the contents thoroughly and immediately sterilize the surrounding area. After sterilizing the area, pack a penetrating Antiseptic Cream into the opened pustule. Do not open too many at once, as the patron soon tires. After the antiseptic cream is inserted apply the high frequency current. If patron is not especially nervous, the opened pustule may then be sparked. Follow with the direct rays of the Thermolite for five minutes. A special Preparation for Acne, which will sterilize the skin as well as aid in forming a cyst wall or capsule around the infection, should then be used by means of a thin sheet of cotton spread over the areas and the Thermolite again applied for five minutes. The cotton is then removed, the face sponged off with the preparation for removing oils and the face lightly dusted with powdered boric acid. in cases when there is any irritation the Calamine Lotion will quickly relieve the irritation. In especially obstinate cases, the 2% Germicidal Soap may be used. This treatment should be applied at least twice a week. Every eruption should be opened and expressed, care being taken not to bruise the tissues. In all cases, after bathing the face, the Acne Special should be applied, before the powder, to close the pores and prevent further clogging.

In extreme cases of the deep type, where improvement is not shown in six weeks, Dermoid Milk may be used. This is applied in place of the Antiseptic Cream in the shop treatment, every other treatment. These local treatments are for Acne Vulgaris, Acne Pustulosa, Acne Punctata and Acne Cactic ticorum.

ACNE ROSACIA

Acne Rosacia is a chronic congested condition of the face, generally the nose and the parts immediately

surrounding. The skin appears flushed, capillaries are enlarged and often acne like eruptions are present. This is usually at the start of the trouble. The slight redness becomes more pronounced upon exposure to cold or heat or upon an attack of indigestion. An oiliness around the nose is apparent, more marked in some cases than others. In some cases the pores are markedly enlarged. The redness upon pressure being exerted, disappears. Eruption may or may not be present at this stage. The nose only may be affected or there may be some slight appearance on the cheeks. In advanced cases, the tip of the nose becomes bulbous and pitted. The tissues break down, leaving the nose a spongy mass. This is often classified as drunkard's nose, altho the subject may be a total abstainer. This form is rarely seen in women. The milder form, however, is not uncommon, as it furnishes about two per cent. of the skin troubles. As in case of Acne Vulgaris, all stimulating drinks must be abstained from. No tobacco may be used. At times a nasal disorder is causative. This should be inspected by an eye, ear, nose and throat specialist. As in Acne Vulgaris, the appearance of the disease is most pronounced at the menstrual period.

Acne Roscaia may be differentiated from Acne Vulgaris by its appearance mainly upon the nose, the redness, dilated capillaries, together with the enlargement of all the pores about the nose. As the treatment is largely the correction of diet, a dietician must be consulted. The same local treatment as in Acne Vulgaris, using a powerful, non-toxic germicidal *Emulsion*[20] which will not burn the skin is used. At the beginning of the treatment, *Calamine Lotion* may be used where there is excessive redness for a few days. This should be applied heavily with cotton and allowed to dry.

After the skin is rendered less sensitive by the Calamine Lotion, the high frequency current may be employed. Cleanse the face thoroughly with Germidical Soap 1 per cent. Dry by patting with cotton pads.

Apply the penetrating antiseptic cream to the affected area. Use the high frequency current, holding the flat electrode ⅛ inch from the face until redness results.

Milia is generally described as a small white, non-inflammatory formation resembling rice kernels in the corium. These are usually on the upper part of the cheeks and around the eyes. There may be only a few or numerous, but develop slowly, and after reaching a variable size as a general rule do not develop further. In most cases no causative factor may be found. Altho generally associated with large pore formations, they do not appear to be located in the ducts. Some authorities consider Milia of congenital origin.

Treatment—Milia are persistent if not harmful, but yield rapidly to treatment. Clean the skin thoroughly with Cleansing Cream. Sterilize the skin with 60 per cent. alcohol to cleanse out the expressed cavity. Advise the patron to use no soap and water for 24 hours and no face powder or rouge for 48 hours.

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CHAPTER XVI

INFLAMMATORY SKIN DISEASES

Under this heading we will outline those diseases whose site is usually the less hairy parts of the body. Those which are peculiarly of the scalp will be found under scalp diseases and ailments.

HERPES SIMPLEX —Generally known as cold sores or fever blisters. They are an eruption of blisters that generally appear at the junction of the epidermis and a mucous membrane, generally the mouth. They are accompanied by a feeling of discomfort and skin tension. Spirit of camphor is a popular remedy for checking them. After they have developed they may be relieved by opening with a sterile needle. If the vesicle should become broken care should be taken that no infection is contracted. This prevention may be accomplished by the use of mild antiseptics and covering the area with carbolated vaseline.

FURUNCULES, commonly known as boils. They are caused by the entrance of a special micro-organism into a hair follicle, sebaceous gland duct or at times a sweat gland. Any one of many numerous contributing influences may be a causative factor, such as friction of the skin while perspiring, soiled clothing, etc. There usually appears a small, painful spot over which the skin shows a rounded, reddish spot. It increases in size and the swelling pushes the pot well above the adjacent skin. After several days the center of this elevation becomes somewhat pointed and assumes a yellow color, showing the presence of pus. This central point soon breaks, the opening enlarges and the pus is discharged together with a grayish white or grayish yellow mass, which is called the core. As soon as this core is removed the pain is relieved and in a short time the cavity fills up. Boils usually run their course in a period of from one to two weeks, provided the surrounding area is kept sterilized so no other infection takes place. Absolute cleanliness of the surrounding area is important. An application of

a ten per cent Icthyol ointment has a tendency to point the boil. After the furuncule has pointed, a physician may be consulted and the boil is lanced and core removed.

DERMATITIS VENENATA—Under this heading may be included all inflammatory conditions of the skin due to caustics, chemical irritants, drugs, plants and other substances applied locally. Among the numerous substances causing dermatitis may be mentioned iodine, cantharides, mustard, strong soaps, clothing dyes, hair dyes and coal tar derivatives. The symptoms are almost as varied as the causes. Thus, when caused by iodine, the area involved may be slight or large. In cases where the entire scalp is involved, it is not unusual for the swelling to involve the eyes, nose and practically the entire head. Vesicles, on the other hand, are hardly ever numerous, unless infection takes place. And yet, in other cases, such as those due to poison ivy, vesicular and bulbous lesions are a symptom. In other cases, as those provoked by paraphenylendiamine, an ingredient at times used in dyes, the eruption at times closely resembles eczema, accompanied by swelling. Treatment, naturally, must revert to the physician, as it is impossible in cosmetic work to cover the field thoroughly, the causes being so numerous and in some cases treatment varying so greatly.

DERMATITIS MEDICAMENTOSA is a term used for those conditions of the skin caused by the absorption or ingestion of drugs. Among the drugs causing this may be mentioned arsenic, copaiba, iodides, bromides, turpentine and many other chemicals and drugs.

ECZEMA—The numerous infections known by this name are best left to the care of the physician. In passing it may be noted there are two general classifications, namely, dry and moist. In the dry type some relief may be had from that old time remedy, buttermilk. Simply apply a small amount with a cotton swab and allow to remain on. Cleanse every

day with olive oil. Do not under any circumstances use soap and water. Ecxema as a rule requires systematic as well as local treatment. Eczema is at times confused with Psoriasis and Favus. But if the symptoms are carefully noted there will no mistake made.

ECZEMA is a local inflammatory disease, sometimes acute but generally chronic, at the start of which eruptions may be accompanied by pus but are generally accompanied by an exudation of lymph, after which a variable amount of thickening takes place, finally ending with the formation of the typical eczema scales or crusts or removal of the upper layers of skin, when severe itching and burning sensations are felt in the part.

EPITHELIOMA — This condition, commonly called skin cancer, may be defined as destructive epithelical growth, having origin in the epithelium of the peidermis or of the glands of the skin. There are several forms of epithelioma. Among these are the superficial types which are most frequently encountered. It may start as a small elevation having the appearance of a wart or fleshy mole. These after they have persisted for some months, gradually scale and become thinly crusted. This gradually changes to an ulceration with a roll-like border, which is gradually pushed back as more ulceration takes place. As may be expected in this type of case, a surgeon's scalpel, together with scientific treatment, is necessary. They have usually progressed byond the province of the cosmetician before a diagnosis is effected. However, in some cases, when they are recognized before deep ulceration takes place, fulgeration may be used to dessicate the area.

CHAPTER XVII

DISEASES OF THE SWEAT GLANDS

The sweat or sudoriferous glands are important organs of elimination, when one considers that more than 26 per cent. of the elimination necessary for health is carried on by these glands. They are extremely numerous, their distribution being extensive and general, some scientists estimating for the entire surface approximately 2,000,000. They are most numerous on the soles and palms.

Diseases of these glands are characterized by either increased or decreased production of sweat, disagreeable perspiration odor, colored perspiration, etc.

Anidrosis—Anidrosis is a functional disorder of the sweat glands where very little or no perspiration is excreted. In certain people the skin is noted as being very dry, the sweat glands being inactive. This may be either acquired or congenital. If in the mild form of skin trouble, the skin should have plenty of creams. The patron should have plenty of exercise, preferably outdoor. If systemic diseases are causative, the physician should be consulted at once. Anidrosis is at times indicative of systemic troubles as diabetes, psoriasis or eczema. In general, the treatment, if the condition is local, may be given as hot baths, plenty of exercise, free drinking of hot liquids and warm clothing. After the bath, Tissue Cream should be applied with brisk massage. The Transparent Cream should be used for cleansing purposes in place of the regular cleansing cream, as this class of skin does not usually tolerate any cream containing wax.

Bromidosis—This is a condition where the sweat secretion has a very offensive odor, often called stinking sweat. The parts mostly affected are the armpits, feet and genito-crural region, altho the feet appear to be the favorite site. At times Bromidosis is associated with an increased amount of perspiration, generally

enough to dampen the stockings when the feet are affected. The odor is very penetrating and offensive, and if once recognized is unlikely to be forgotten. Certain foods and drugs often cause Bromidosis, among which are sulphur, asafoetida, garlic and onions. The sweat upon excretion being protected from the air by the clothing and the location, makes an ideal breeding place for bacteria. Authorities differ as to whether the odor is caused by a breaking down of the perspiration, by bacteria after excretion or before excretion.

Treatment—The affected parts must be bathed at least daily. All clothing coming in contact with the affected parts should be changed every day. The parts may be washed with a one per cent. Formaldehyde Solution every other day. Care must be exercised that this is not carried too far so as to harden the skin excessively. After washing, the Deodorant Powder should be dusted on. If the feet are affected, the Deodorant Powder may be dusted into the shoes, after being wiped out with the Formaldehyde Solution. Stockings should be washed and rinsed in a Formaldehyde and Boric Acid solution before drying. Often the Deodorant Lotion is of benefit when applied at night and allowed to dry on. Bromidosis is usually closely associated with Hyperidrosis and needs the same treatment.

Chromodrosis—This disease is characterized by colored perspiration. The perspiration may be black, bluish black or bluish brown. The most common sites are about the lower eyelids and the cheek. The parts are slowly discolored. This discoloration may be removed by rubbing and washing with some force, but again collects slowly. At present the cause is unknown, outside of the general health of the patient having some bearing.

Hyperidrosis, or excessive sweating may be either local or general, acute or chronic. Excessive general sweating may be a part of a serious illness and necessitates the presence of a physician. Chronic local Hyperidrosis falls within the operator's work. The sites

mostly affected are armpit, hands, feet and genito-crural region. Where the condition has prevailed for some time, the flesh is flabby and soggy to the touch and has a clammy cold feel. The feet especially have a soggy, puffy appearance. Under the armpits seem to be a favorite location in women and when present, the woman usually wears a dress shield to protect the clothing. These shields are usually of rubber and tend to increase the secretion. In the genito-crural region, an excessive secretion is frequently followed in hot weather by chaffing and often an eczematous irritation results. In these regions the perspiration undergoes rapid chemical change, developing an offensive body odor.

Treatment—Armpit and Genito-Crural.

Frequent washing is essential. The parts may be washed with a one per cent. *Formaldehyde Solution.* This should be done in the evening and after drying, the *Deodorant Lotion* applied and allowed to dry on. The following morning before donning the clothing, *Deodorant Powder* should be dusted over the parts. If chaffing is present and there is an irritated condition, a small amount of Hydrous Lanolin may be applied to the parts at night, rubbed in and allowed to remain over night.

Feet—Practically the same treatment may be used with success on the feet, with the exception of the use of the lanolin. The stockings should be rinsed in a *one per cent. Formaldehyde Solution* before drying.

Uridrosis—A condition in which the perspiration contains the elements of Urine, especially Urea. In this condition the perspiration usually has the odor of urine. In exceptional cases, the skin becomes covered with a whitish coating resembling flour. The trouble is systemic and requires the services of a physician.

Sudamen is a disorder of the sweat glands in which an eruption of small vesicles containing sweat appear on the body. It appears suddenly with very little if

any inflammation and is usually preceded by intense itching. The contents of the vesicles remain clear and in a few days usually disappear. This trouble only appears on those whose general system is run down. At times Sudamen is associated with fever.

Treatment—The affected parts may be sponged with diluted alcohol and powdered Zinc Oxide applied. Naturally, the systemic condition has much to do with this, and as soon as the system is again normal, no treatment will be needed. The above treatment, however, allays much of the itching.

Hydrocystoma—Like Sudamen, is non-inflammatory, but is usually larger. The vesicles are solid looking, whitish looking with a blue tinge around the edge. Whereas the body is the favorite site for Sudamen, the face is usually the site for Hydrocystoma. The vesicles, unlike Sudamen vesicles, are persistent and often last for months, especially during the summer months. Unlike Sudamen, the subject is not rundown physically. Hydrocystoma usually occurs in middle-aged or elderly women, generally those who perspire freely or are subject to a moist atmosphere, as washerwomen.

Treatment consists of puncturing the vesicles with a sterile instrument and draining out the contents, after which the skin should be sponged with a solution of dilute alcohol. Deodorant Powder may then be applied.

Milaria Rubra—Heat Rash—Prickly Heat.

Prickly heat is a disorder of the sweat glands, characterized by severe itching or burning, accompanied by small vesicles or papules. The entire body may be involved or only local conditions may prevail. Extreme heat is usually the cause, either atmospheric or from the body being overclad. Over-fleshy, middle-aged adults and small children are usually the ones affected, as well as those who have partaken of alcoholic or very stimulating drinks.

Treatment—Under favorable conditions with treatment Milaria Rubra comes to an end within a week. As extreme heat is usually the causative factor, this should be one of the first considerations. Epsom Salts or other saline laxatives should be taken at the start. Fleshy adults find acid drinks such as lemonade with very little sugar beneficial. The old, simple acid application may be sponged on, consisting of one part vinegar and six parts water. Where itching is intense, the Calamine Lotion given elsewhere may be employed.

NOTES

CHAPTER XVIII

THE HAND AND ARM

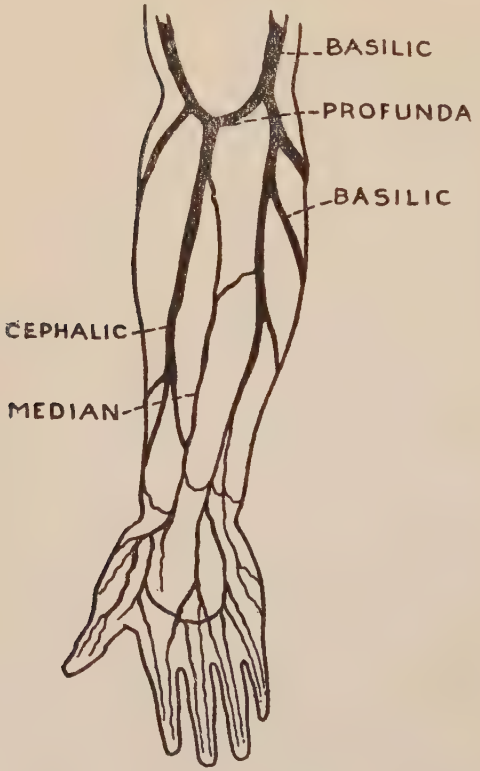

CHART XXI—Veins of Hand and Arm.

To the student of *Cosmetic Therapy*, the most valuable asset she has, are her hands. Without the hands no work is possible. And yet numerous operators pay very little attention to the hand. The hand is the first part of the body to show advancing age, being

subject to much more rigorous action than any other part of the body.

When working upon a patron, the operator's hands are more or less in evidence all the time. If the hands are damp or cold, they produce a disagreeable sensation upon the patron. If the skin is rough and harsh, there is a distinct grating upon the nerves in massage, as well as in the handling of the hair. If the operator's hands are unkempt, they grate upon the sensibilities of the patron. A successful operator *must* take especial care of her hands and arms. If the skin is rough and coarse, washing with the *Hand Cleanser* and a few applications of the *Hand Lotion* will soon soften them. For discolored hands the *Beauty Clay* mixed with one-third water, one-third witch hazel and one-third peroxide will soon bleach them. If necessary a small amount of ammonia may be added to the solution. The cold, damp hand is generally the result of poor circulation and may be overcome with massage treatments.

MASSAGE OF THE HAND AND ARM

Massage of the hand and arm is accomplished by practically the same manner as facial massage. It accomplishes the same result, namely, stimulation of the muscles and blood supply. This is accomplished by all movements being with the veins and lymphatics, thereby forcing the waste materials back for elimination.

Start by placing the patron's elbow upon a pad and apply cream. Then gasping the patron's left hand with the operator's left hand, work from the finger tips back to the hand, much in the same manner as when forcing the fingers into a glove.

Take each finger separately, using each movement twice across, twice back and once across, making in all five turns. The movements are executed after the fingers are covered; follow the venous circulation of the back of the hands with the shuttle movement to the wrist three times. Turn the hand over and follow

the venous circulation to the wrist three times with the shuttle movement. Now, holding the patron's hand in the two hands, use the rotary movement twice to the wrist, finishing the movement with a straight movement up the forearm, the thumb on the back of the forearm, and gradually twisting toward the inside of the forearm.

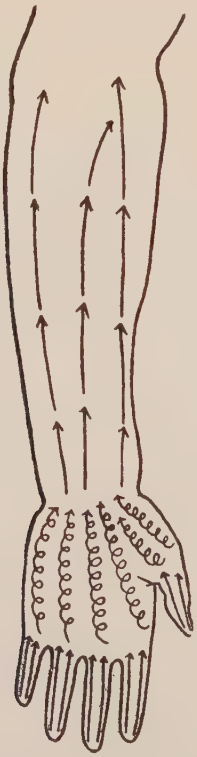

CHART XXII—Start of Hand and Arm Massage. Fingers, Back of Hand and Arm.

Repeat the movements on the flexor surface, finishing with a straight movement directly up the forearm.

Now, with the wrist of the patron grasped with the left hand of the operator, use an upward stroke with the right hand, grasping the arm, the tip of the finger following the venous circulation. This movement may be used to the shoulder if desired. Repeat three to five times.

CHART XXIII—Shuttle Movement.

Next use the shuttle movement, executed with the thumbs of both hands, first upon the outside, then on the flexor surface. Use three times.

Now use the rotary movement from the wrist to the shoulder three times.

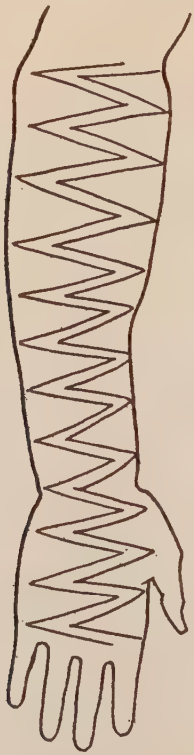

CHART XXIV—Shuttle Movement on Flexor Surface.

Finish the massage with a straight half-turn movement to the elbow, and another half-turn to the shoulder. This must be repeated five times to cover the entire arm.

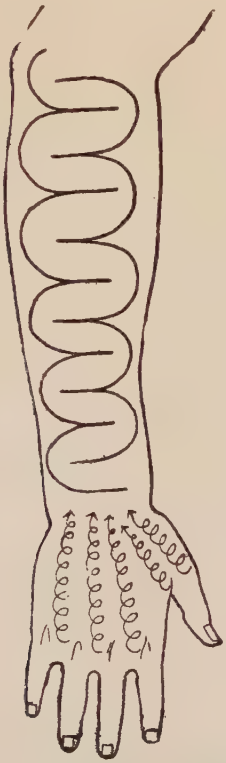

CHART XXV—Half-turn Movement.

The elbow should then be given attention and cream massaged in well. Now clean off all paste with *Lotion*. *Astringent* should then be applied with a small pad of cotton, stroking toward the elbow and shoulders. Lastly, powder the arm and hand lightly.

CHAPTER XIX

FINGER NAILS

Nails are the horny, protective covering of the upper surface of the tips of the fingers and toes. They consist of a modified form of epidermis, joined in one continuous plate.

Nails are composed of an outer convex part and an under soft portion. The under soft portion is known as the bed of the nail. The outer hard part is divided into the Free Edge, Body, Lunula, Eponychium or mantle, nail root.

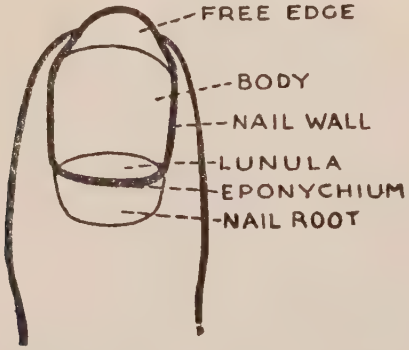

CHART XXVI—Parts of the Finger Nail.

The cells of the nail are formed by the germinative layer at the base of the nail. As these cells are formed in the matrix into true nail cells, they are gradually pushed forward toward the tips of the fingers, gliding over the nail bed. As this layer projects past the nail bed it forms the free edge. The matrix is sensitive, as may be proven by pressure on the Lunula, or that part of the matrix which may be seen.

A layer of the epidermis extends over the base of the nail. This is called the Eponychium or Mantle.

On each side of the nail there is a fold of skin known as the nail wall.

A nail in perfect health is of a rosy color, perfectly smooth and has a polish of its own. A nail by certain characteristics may show morbid conditions within the body. A rough, ridged nail is shown after severe illness, and also in nervous conditions. A bluish tinge is imparted by poor circulation. Brittle nails are also generally a symptom of poor health.

MANICURING

Arrange your instruments and materials so they are within reach. If the hands are rough and soiled, apply *Cleansing Cream* before starting operations. Wipe off thoroughly and start the manicure.

Holding the file in the right hand between the finger and thumb, file the nails of the patron's *right* hand. Begin at one side of the nail and file toward the center of the nail. Never file from the center toward the side, as this produces a very unpleasant sensation. After filing the nails of the right hand, place that hand in the soapy water and file the nails of the left hand.

Remove the right hand from the water, placing the left hand therein. Take the cuticle pusher or orangewood stick and after dipping in the *Oil* for softening the cuticle, loosen the cuticle by gently forcing back over the Lunula. Then work from the center of the nail toward the nail wall. Now apply the *Bleach* to the free edge. Then, after wrapping a bit of cotton around the orangewood stick, moisten with water, and with a rotary motion remove all loose cuticle. Wipe off the nail and use the emery board. Then trim off all hang nails and ragged portions of the cuticle. Remove all stains from underneath the free edge of the nail. Apply *Cuticle Ice* to the fingers and work on the left hand, repeating the operation.

As soon as the left hand is finished wipe the *Cuticle Ice* from the *right* hand, apply *nail tint* and *nail polish* and buff the nail.

After securing a fresh bowl of warm water, scrub the nails well, removing all traces of preparations. Rinse the hands and wipe dry. Now apply polish and buff the nails lightly.

Dip the point of the orangewood stick in the *nail white* and run under the free edge of the nails. Twist a tiny point of cotton on the orangewood stick and remove all excess.

Lastly, apply a small amount of *powder base* to the hand and apply a light coat of powder.

Hot Oil Manicure

Given the same as a manicure, only *Manicuring Oil* kept in a bowl of hot water, is used in place of the soapy water, except in the final polishing and cleansing.

Brittle Nails—Fragile nails which split easily are due to lack of calcium in the system. For treatment locally, a hot oil manicure may be given once a week. At the same time the patron should be supplied with a package of *Nail Tone*. This should be applied to the nail with a small piece of cotton just before retiring.

Ridged Nails—The same treatment should be given for ridged nails as for brittle nails.

Bruised Nails—A bruised nail, if treated quickly enough, may be prevented from discoloring with clotted blood, by placing the finger tip in as hot a solution of *Epsom Salt* as may be borne, for thirty minutes. This is also of some benefit after the blood has clotted. The solution should be a tablespoonful of Epsom salts to one-half pint of water.

Hang Nails—Hang nails may be caused by the use of too strong alkalies on the hands or more generally by the Eponychium being pulled out on the nails too far. Often these are relieved by clipping the hang nails close to the skin with the cuticle nippers. If they persist, the patron may be supplied with a package of *nail cream* and told to gently massage this into the skin around the nail at night. This will remove all the soreness, generally in one application.

CHAPTER XX

THE HAIR

Hairs are horny formations derived from the epidermis, seated in the corium in hair follicles. Hairs vary greatly in color and number. People with the lighter color of hair have the greater number of hairs, blondes being 140,000, brown and black are next with 108,000, and red with the least number, 90,000.

There are two parts to the hair proper, the hair shaft and the hair root. The hair shaft is that portion outside the skin. The hair root is that contained in the follicle. The hair follicle is a sac or pouch-like depression in the skin from which the hair grows, at the base of which is a nipple-shaped elevation known as the papilla, from which the hair obtains nourishment. Each hair follicle has from one to four sebaceous glands. Attached to the external coat of the

CHART XXVI—A—Human Hair Shaft. h—Cuticle. s—Cortical Substances. M—Medulla.

follicle are the Arrector Pilli muscles, which raise the hair.

The condition known as gooseflesh is caused by the sudden contraction of these muscles. This action of the Arrector Pilli muscles is in turn caused by the nerves of the skin being acted upon by nervous perturbation or the skin being chilled.

The *Hair Shaft* consists of the Cuticle, Cortical Substance and Medulla. The cuticle is a horny layer of scales overlapping much in the same manner as fish scales. This cuticle is the part of the hair which holds most of the coloring or varnish when so called Henna packs are applied.

The *Cortical Substance* is composed of long, narrow spindle shaped bundles of fibers. This contains the normal pigment of the hair. This with a good hair dye takes up the dye and leaves the hair more naturally colored.

The *Medulla* is the center of the shaft and consists of cells and small round bubbles of air. It is to the presence of these air bubbles in both the medulla and in the cortical substance in varying amounts that grey, white and blonde hair is due. The hair shaft itself has no life, and therefore does not grow, but is rather pushed out by the formation of new hair at the papilla. As the old hair is replaced by the new, the old hair is pushed out by the growth of the new forming around the papilla. Under normal conditions hair grows from five to eight inches a year. The life of a hair varies greatly, being from one-half to five years. In falling conditions of the hair, the old hair is replaced by weaker hairs, these in turn yielding to a gradually diminishing hair until the growth is finally lost. *Lanugo* or false hair are found over the entire surface of the body except on the soles and palms. These have no medullary portion and therefore have very small amounts of pigments.

By massage of the scalp in the proper manner the blood supply is increased, thus feeding the hair. Improper manipulation may increase the blood supply

but at the same time may extract young hair or by drawing against the natural inclination of the young hairs, loose it from the papilla.

The use of strong soaps, Peroxide, bleaches, etc., by extracting the natural oils from the hair, causes them to crack, break or split. These at times temporarily destroy the natural color, but as the hair grows out from the follicle, it will have its natural color. Also, in using dye remover great care should be exercised, as these generally consist of strong alkalies.

A healthy head has a well padded flexible scalp with a smooth, silky feel to the hair.

SHAMPOO

The shampoo for plain shampoo should be made from a good grade of castile soap. The Italian Castile is generally considered the best, although there are some others equally as good, practically all being made in the four-pound bars.

1½ lb. Castile Soap.
3 gallons water.
Perfume.

Boil the castile soap in one-half the water until thoroughly dissolved. Then add the remainder of the water, which has been previously warmed and the borax dissolved therein. Finally, as the solution is setting, add the odor.

In giving the shampoo after placing the customer comfortably, apply the shampoo warm, to the scalp and rub with the balls of the fingers. The ends of the fingers should never be used, as they are liable to irritate the skin. In excessively oily hair the *Menthol* tonic may be applied before the shampoo, as these cut the oil in the hair and also leave a cleaner scalp. The back of the head deserves especial attention, as this is frequently the seat of oily hair. After the first application of the shampoo, rinse well with the spray and warm water. Apply the shampoo the second time and rinse. This process is necessary two and sometimes

three times to remove all the accumulated oil and deposits. In removing *Light Antiseptic* and *Dark Antiseptic Oils* with the shampoo, it is of advantage to use from 15 to 25 drops of ammonia to the pint of shampoo in the first application. This removes the excess oil quickly and easily and *in this proportion* is not in the least detrimental to the hair. After the last rinse remove as much water as possible by wringing the hair. Then rub the head briskly with towels for a few moments. Loosen the hair by running the fingers through it and turn on the hair dryer to the hottest current of air. As the hair is dried a light application of the *Menthol* or *Capillarine* tonic gives a soothing, cooling, restful feel to the scalp that is justly appreciated. This should be applied before the hair is entirely dry. During the time the dryer is in operation vigorously rub the scalp and hair, keeping it in motion during the entire process.

In shampooing bleached hair, it is better to give a hot oil shampoo, using water which is not too hot.

Hand Drying—This is accomplished by running the hands through the hair, always keeping the hair moving, using towels to wipe out the moisture when necessary.

Artificial Sun Drying—After the shampoo the larger part of the moisture is removed with a bath towel. The Radio Bell or Thermolite is then turned on with the *blue* light and the hair exposed to the rays. The hair is kept moving with the hands, as in hand drying. This method is especially efficacious when either the *Dark* or *Light Antiseptic* oils are used.

A brighter sheen will be given to the hair if it is brushed with a *good* brush for from three to five minutes after the hair is dry. This should be accomplished by the twisting pick-up movement of the brush.

Egg Shampoo

Beat the white of eggs lightly and apply with cotton pledgets to the scalp, parting the hair. Cover the entire scalp. Massage dry and give two brushings, one with cotton and one without cotton. Comb out. The best effect of the egg shampoo is the massage which must be given to dry the egg. These are given where the hair is dry or where bleaches, hennas, etc., are used and are much better than a wet shampoo.

In cases of extremely oily hair it is not advisable to shampoo the hair as often as it really needs it. This may be overcome by using the dry shampoo powder, alternating with the regular shampoo, approximately every ten days. This method is especially efficacious where the patient is using the *Capillarine Tonic* at home as well as coming to the shop for regular treatment for oily troubles.

Dry Shampoo—Corn meal or *corn* meal and orris root, equal parts. Part the hair, hold close to the bottom of the part and lift the corn meal up, rubbing into the scalp thoroughly. Rub with massage motion till the oil in the hair is absorbed. Rub out the meal and pin up the hair. Wipe off the face, take off the apron and shake. Pin the apron on again. Brush once with cotton and once without. Apply tonic, massage and brush out.

Singeing the hair is another and quicker mode of clipping the split or cracked ends of the hair. It is no more beneficial than clipping with shears. This is accomplished by dividing the hair into small wisps, twisting, spreading the ends of the twist and using the tapers. The *No Drip* taper should be used, as these do not smoke the hair or drop small drops of melted wax or oil.

REMOVING YELLOW STAINS FROM GREY OR WHITE HAIR

Yellow stains in grey or white hair may be overcome to a great extent by the first application of *Snowhite*. Especially is this true if caused by perma-

nent waving. Take a very stiff brush, apply the *Snowhite* to the hair in quantity sufficient to wet the hair and brush through the hair well. Turn on the hair dryer *hot.* The hair is very sticky and some difficulty will be found in moving it, but it is very necessary to have the heat from the dryer reach all the hair and warm it. After the *Snowhite* on the head is warm allow to remain on *ten minutes*, then rinse the hair with warm water. It is sometimes necessary to apply a small amount of shampoo before rinsing. Another simple preparation which is much used is the juice of lemons. This is applied after the shampoo to the streaks. Peroxide is also used but is liable to cause breakage in grey hair. Dry the hair under the warm current of air till perfectly dry and apply *Menthol Tonic.*

Hot Oil Shampoos

Kerosene mixtures are often used for hot oil shampoo. These are very good if the proper kind of kerosene is used. The ordinary kerosene which is cracked with sulphuric is not good for the hair. There are certain grades which may be bought from the specialty oil man which may be used to advantage. The light mineral oil, generally known as cosmetic oil, is of practicaly no benefit by itself, as it is not penetrating enough. Care must be exercised in using mixtures of kerosene and castor oil as the wrong kind of kerosene when mixed with castor oil and applied to the scalp may cause damage.

Antiseptic Oil Light—Used for dry, brittle hair with normal scalp. Apply the oil with a tooth brush or cotton, parting the hair in small strands, after which steam with hot towels or use the Dermal lamp or Thermolite with the blue light and massage well.

Antiseptic Oil Dark—Used for oily hair and scalp. Apply same as the Light Antiseptic oil. After shampoo apply a very small amount to the bristles of the hair brush and brush with the upward and outward movement.

PACKS—RINSES

Egyptian Henna Pack—This pack is made from first grade Egyptian henna, which has a greenish cast to it. The inferior and cheaper grades of henna are brown. This produces a striking red shade on the hair that many desire. It is not injurious to the hair if an oil pack is used on the hair occasionally.

First shampoo the hair with the plain shampoo. Give a rinse containing one-half peroxide and one-half water with a few drops of ammonia added to cut any oil on the hair. Mix the henna to a thin paste with hot water and bring to a boil. Keep this warm and apply with a small brush, parting the hair in small parts, going over the top first and then the back of the head.

When dried the desired length of time shampoo off, then give a rinse with Boracic Acid—a teaspoonful to a quart of water. Lemon rinse also makes a good final rinse or developer. In tinting with henna packs leave on from ten to thirty minutes. Dry hair takes very quickly and sometimes will take in five minutes. Grey hair should be left on one hour at the first application. It takes 24 hours for the color to set in the hair, at which time it will be darker than just after the application. Mixing the paste with vinegar will give a redder shade. To suppress the red in henna packs add to one quart of water ten grains of *Pyrogallic Acid*, *five grains* of *Copperas* and a drop or two of ammonia. If dark shades are desired, black tea should be added to the paste.

Henna D'Oreal—B. Pauls Henna and other such preparations generally come in twelve shades and are used in paste form in accordance with the directions in each package to obtain the desired shades.

Henna Rinse—Made by boiling the henna leaves in water and straining the tea thus made. Approximately a handful of leaves are used to a quart of water. This is poured through the hair after the last shampoo rinse.

Vinegar Rinse—Two teaspoonsful of vinegar to one pint of water. Use after shampoo and rinse off with water. At times is beneficial when used on hair having a tendency to tangle.

Sage Tea Rinse—Prepared in the same manner as Henna rinse using sage leaves.

Bluing Rinse for Grey Hair—Dissolve two teaspoonfuls of borax in a quart of water. To this add enough ordinary ball bluing to make the water a clear blue.

Lemon Rinse—Add a tablespoonful of either lemon juice or the *Lemon Rinse Concentrate* to a quart of water.

Chamomile Rinse—A slightly smaller amount of leaves are used than with the henna leaves, steeped and strained clear. This gives a light goldish shade on light hair. Use lemon rinse afterward.

BLEACHING

By bleaching hair is meant, not the removal of a henna, but the lightening of the color of natural hair or the lightening of the color of hair which has been dyed with an instantaneous dye. Often times it is quicker and more satisfactory to remove the dye by the use of oil mixtures together with hair dye removers than to attempt to do the work with peroxide. In bleaching for dyeing, the hair should be bleached one or two shades lighter than the color to be used.

Seventeen-volume peroxide one teaspoonful, ammonia 3 drops is the standard bleaching compound. By 17-volume peroxide is meant that peroxide, each volume of which contains 17 volumes of peroxide. This, as a general rule, deteriorates somewhat rapidly and should be tested. After a peroxide is reduced to 13 volumes, it should be thrown out, as it is unfit for use by the dyer. Ordinary peroxide such as is bought at the drug store, is 10-volume peroxide and is unfit for dyeing use. Peroxide should be strong enough to break down the color quickly and be removed before breaking down the structure of the hair. Ammonia, when mixed with the peroxide, aids in this quick action, and also has the property of giving more of a

reddish tinge. Peroxide, when left on the hair, leaves the hair unsightly and also damages the structure of the hair. 17-volume peroxide will have accomplished most of its reaction in thirty minutes. If the color is not light enough, a second application may be made.

In bleaching, start with the natural oils in the hair, that is, without shampooing. Start at the roots and work towards the ends, saturating the hair as you go. Work as fast as possible, but be sure to overlook no spots. Some operators, when the application of bleach is complete turn on the hair dryer, with a warm current of air. This in some cases aids the action of the peroxide. The hair, under the old method of bleaching was first shampooed. This takes the oils out of the hair and allows the peroxide to work unhindered on the structure of the hair. By not shampooing, the natural oils are left in the hair, the peroxide works somewhat on the oils, thereby protecting the hair structure. The hair should lastly be shampooed with warm water. Too hot water should not be used. In shampooing bleached heads hot oil shampoos are best followed by a shampoo with a *neutral* or very nearly neutral castile soap.

In retouching bleached heads, approximately the last quarter inch of the unbleached part is deliberately left untouched with the peroxide. This allows the peroxide to spread or run the last quarter of an inch, thus blending the old and new bleaches together without overlapping. Retouching in bleaching as in dyeing is as a general rule much more difficult than in an original dye.

It must be remembered that the compound hennas do not react to peroxide in the same manner as the instantaneous dyes. The dyes penetrate the hair, whereas the hennas form a coating around the hair. Especially is this so with the reaction of henna compounds to peroxide when mixed with the so-called white henna. This compound of the white henna and peroxide should not ordinarily be used with the henna compounds, as you are liable to need a few extra pockets

to accommodate the hair upon the removal of the white henna. A solution of hydrohloric acid, one part of hydrochloric acid and eight parts of water is generally more efficient in the skilled operator's hands than peroxide in removing henna compounds.

Do not attempt to bleach progressive dyes, such as the so-called hair color restorers, the most of which contain either silver nitrate, sugar of lead or iron compounds, with peroxide. An application on these of peroxide often produces purples and greens. Care must also be used in applying peroxide over the so-called tints generally applied after the shampoo as a beautiful salmon pink often is the result. For removing the so-called restorers from the hair a solution of potassium iodide made by dissolving one ounce of potassium iodide and one-half drachm of salt in seven ounces of water may be used.

It must be remembered, that after the use of any bleach or color solvent, hot oil treatments are a necessity. Otherwise the hair is dry and brittle and liable to breakage.

One of the important don'ts in bleaching to obtain a blonde shade is do not attempt to bleach a Titian or auburn to blonde. These colors invariably become a dirty color when bleached.

DYEING

Hair dyeing, although one of the oldest divisions of beauty work, has reached its present state only in the last few years. The old style silver and iron dyes were messy, and while they accomplished their end in a way, they were difficult if not impossible to control. Hair dyeing at the present time, although not perfect, is at least more satisfactory from the cosmetician's viewpoint, as, judging from the texture of the hair, former use of dyes, bleaches, restorers, etc., she is able to approximate the desired shade.

Hair dye customers might be divided into three classes—the virgin head, the retouch and the head

which has been unsatisfactorily dyed, either with the instantaneous dye or with the various compounds. These three classifications might easily be three different classes of work, so much do they vary.

With the majority of instantaneous dyes there are four things necessary to judge before the dye. First—Color; second, hair resistance; third, texture; fourth, predisposition.

In judging color it is well to remember that manufacturers of dyes use white or gray hair for making the colors on your color card. Therefore, if you are not dyeing over gray hair, allow for the amount of color already in the hair. Also remember, it is well to use a shade which is one shade lighter than your color on the card, so as not to get too dark a color. Next, that all dyes are divided into drabs and reds, as in the natural colors of hair. If the natural color of the hair is drab, do not use a red, as this will cause the face to appear harsh. Another point to remember in dyeing is that no natural head of hair is ever a solid color. There are always some high lights in it. Some hair dyers are unable to obtain these high lights and the head invariably looks dyed.

In judging hair resistance straight hair generally has less resistance than wavy hair, and wavy hair less than curly. The straight hair is the nearest to being round, the curly hair the flattest, while wavy hair comes in between. In testing the virgin head for predisposition, it is generally as well to test the hair at the same time for resistance. This is accomplished by applying the dye in the same manner, to a lock of hair, as in dyeing the entire head. If the hair dye does not take well, it may be conceded that the hair on the head will not take well. A softening process is then needed. This is accomplished by the use of the 17-volume peroxide and ammonia on the drab shades, and 17-volume peroxide and liquid shampoo on the drabs. If this softener or corrective is necessary for the dye, apply 15 or 20 minutes before the dye.

In judging the resistance of the hair, the external coat of the hair is composed of scales. These scales are coarser at the roots than at the tips. Also these scales are somewhat more loosely adherent toward the tips. This is caused by the natural wear on the hair, from brushing, shampooing, etc. This difference in resistance between the tips and the new growth is taken care of by dividing the hair into three sections—the roots, lengths and tips. The roots represent the new growth of hair for about three inches from the head. The lengths all except the last two or three inches of the hair. In applying, the dye is applied full strength to the roots. This is allowed to take a few moments before the application to the lengths. The tips are taken care of by combing or brushing the coloring over the tips just before the shampoo. After the final combing, allow to remain on the head until the desired depth of color is attained, shampoo at once with three applications of soap and rinse, dry and brush to develop the gloss.

In judging the texture of the hair, fineness is a consideration. Also whether the hair has a silky or a coarse feel. Fine hair as a rule takes much quicker and deeper than coarse hair.

Predisposition in most hair dyes is another most important point. Predisposition, also called by the medical profession idiosyncrasy, is the bugaboo as well as the terror of the hair dyer. Predisposition is the ability of some people to absorb a drug thru the skin and obtain a toxic reaction, or, in simpler words, a person is predisposed who cannot stand the application of dyes. This not only applies to hair dyes, but also to iodine, liquid glue, acetone and other chemicals. In testing for predisposition, mix a small quantity of A and B and apply to a small spot just back of the ear. Allow to remain on from 12 to 24 hours and if there is no redness, nor unpleasant sensation upon pressure, you are quite safe in applying the dye.

In the retouch much of this work is unnecessary. The hair color has already been selected, predisposition determined, we have her resistance determined and what steps were taken on her card for the previous dye. Therefore, it is necessary to match the former application of dye without overlapping. If a bleach was necessary, the method of obtaining the bleach on the part wanted will be found under bleaching. The greatest point is not to overlap. This may be overcome by using a very small dye brush, or an eyebrow brush which allows you to do closer work, and by being careful not to apply too much dye on the brush, as the liquid has a tendency to run. This tendency to run may be overcome by adding powdered magnesia to the dye to the consistency of a heavy cream and then making the application.

Lastly, is the head which has been unsatisfactorily dyed. These are legion in number and are from varying causes. They might be divided into two great classes, those in which the texture of the hair and strength of the hair is reduced to very near the zero mark, and those where the hair structure is not yet irreparably damaged but the color is streaked, banded or of metallic colors. In the treatment of both of these classes the greatest salvation at the present time is oil treatments. The oil treatments prevent further breakage during the repair work and are themselves of advantage in removing the bands. Spot bleaching is resorted to on the streaked hair. This is accomplished by slipping a blotter under the streaked hair and applying the peroxide or color dissolving compound to the streaked hair. This eliminates to a great extent the possibility of getting the bleach or dissolver upon hair where you do not want an action. In removing the band with hot oils, kerosene derived from the asphalt crude oil is used. This oil should be one of the oils which is not cracked by sulphuric acid. This kerosene may be mixed with one of the proprietary oils[20], two parts of the proprietary oils and one part of kerosene, and allowed to remain on over night and a sham-

poo given the next day. When the oil is applied the hair should be brushed well and also just before the shampoo. In removing the hair restorers, the iodide of potassium solution given under bleaches may be used, followed by the proprietary oil[20] without any kerosene.

For correcting the henna compounds the Hydrochloric Acid solution given under bleaches may be used followed by the proprietary oil[20].

In dyeing it is well to remember that it is impossible to dye hair lighter and if there are dark streaks in the hair before dyeing which are darker than the dye, the finished head will also be streaked; this also applies to bands.

The general procedure in a hair dye after being placed in a condition to take the dye would then be somewhat after the following method:

After seating the customer and arranging the dye apron, apply cleansing cream to the face and neck up to the hairline. Then mix the dyes which are marked A and B in equal parts in a clean saucer. Then, after parting the hair, start from the crown of the head and work entirely around the head. Take a small strand in the left hand and with the tooth or dye brush in the right hand, start about three inches from the head on the strand and brush toward the scalp. Do not use too much dye on the brush at one time, as the dye will then run. This may be overcome in some dyes by beating the dye to a froth with a small egg beater. After covering the entire head in this manner, start on the lengths or that part between the hair already dyed and that part known as the tips or last three inches of the hair. If bobbed hair is being dyed, it will not be necessary to apply more dye, but simply brush or comb the applied dye through the remainder of the hair. If the hair is long, the dye should be diluted about one-third, then applied to the lengths. If the dye is applied to the lengths it will be necessary to brush it out over the tips. In brushing the tips brush *from* the scalp towards the ends. This makes an even, beautiful dye.

After the applied dye has set approximately 15 minutes a small portion may be cleaned with a cloth to see if the dye has developed enough. When developed sufficiently, shampoo at once. Always remember that the full color does not develop for 24 hours. Also that it is impossible to dye hair lighter, so if there are streaks of dark hair which are darker than the dye, the finished head will be streaked.

Lastly might be mentioned cases of hair dye poisoning. These as a general rule are paraphenyline diamine cases. Some of the henna compounds also give this poisoning. Intense itching just after the dye is the start. The skin then becomes inflamed and there is a swelling of the infected parts. If allowed to continue without treatment the swelling persists until there is a puffiness about the entire head. If not treated at this time cracks in the skin may become manifest, together with pustules, generally caused by the patient infecting themselves with their finger nails. Your physician should be called in these cases, where the swelling has developed to the puffy stage. If the inflammation has just started applications of warm milk or cream may be made. These should be made continuously, not allowing the milk to become entirely cold on the head. These may be followed with a soothing lotion such as the calamine zinc oxide lotion given elsewhere. Under no consideration should ointments or cold creams be used.

For safety's sake, do not attempt to dye a head of hair, where the skin of the scalp is broken, or where there are any eruptions.

Some operators appear to be getting results on metallic shades by applying a 3 per cent. solution of Sodium Sulphate to the metallic shades before redyeing.

NOTES

NOTES

CHAPTER XXI

FRENCH PAPER WAVING

The basis of French paper waving may be found in Egypt. Numerous mummies have shown examples of this art after a period of centuries. This art in Egypt may in fact be said to be the forerunner of both paper waving and permanent waving. Consider-

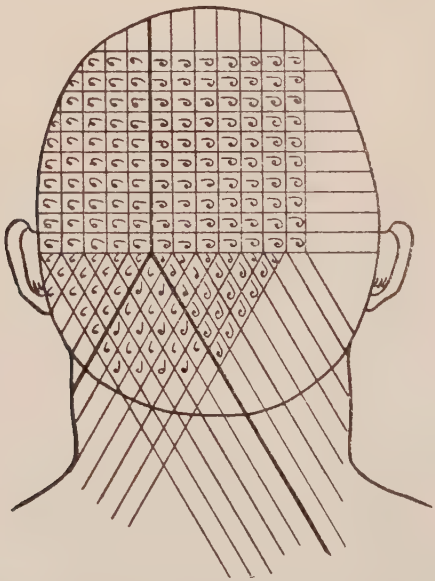

CHART XXVIII—French Paper Wave, side part.

able practice is necessary to become proficient, but it is well worth the operator's time, as some wonderful effects may be procured.

The art in paper curling lies not in making the curls, but in making the curls evenly in rows, so when they are set a uniform wave is given. The instruments

necessary are wrapping sticks, wrapping papers, pinching irons and *paper wave oil.*

Shampoo the hair thoroughly to remove all dirt and grease. This is essential not only from the standpoint of making the wave hold, but also to remove the excess native volatile oils on the hair. These if left on, when the curl is heated, volatilize and cause the hair to split or break. Dry the hair thoroughly and apply paper wave oil lightly to the entire head. This oil prevents the hair splitting and at the same time aids in holding the curl.

Beginning at the forehead, part the hair in squares of about one inch, following the part of the kind of wave intended. Then holding the paper wave stick in the right hand, slide the stick *under* the strand and with the left hand give the hair two or three turns. Now roll the hair up on the stick as close to the scalp as possible. Slip the hair off the stick with the first finger and thumb of the left hand. Still holding the curl with the left hand slide the paper curl paper

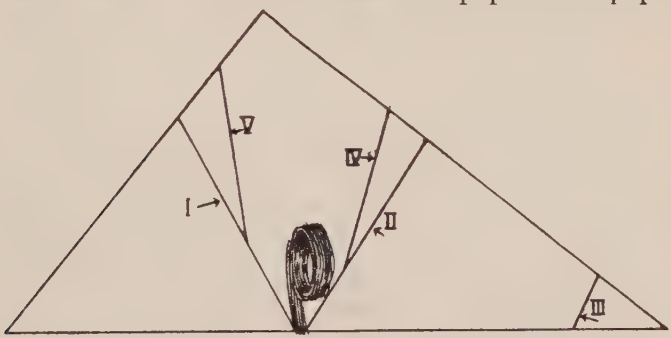

CHART XXIX—Folding French Paper Wave Paper.

under the curl with the base of the triangle against the scalp and dull side against the hair. Now fold the number one in the diagram over the hair; now from the center line fold number two over number one, and fold number three over the back of the paper, thus forming a triangle of the paper, with the con-

necting strand of hair coming through the point of the triangle. Now fold the two lower points, numbers four and five of the triangle forward and press them down. Then twist the lower part of the paper. This securely fastens the curl in the paper with no chance of slipping.

The part line should be followed first, then dropping down to the second line, etc., until the side of the head is covered. The turn of the curl is accomplished by either placing the curl to the right or left of the strand before the paper is folded. As for instance, in the side part, on the left hand side the curl is toward the left hand, on the right side of the head the curl is toward the right hand.

At the apex of the triangle of the dividing lines, the curl is turned the same as on the lighter side. On each side of the head the hair is turned toward the head and baked with curl toward the back. At the back of the head the curl is turned first one way and then the other on each successive layer.

After the hair is in papers, use the iron to bake in the curl, using just enough heat to thoroughly heat the hair. Fan the hair until cool, with the papers on.

In dressing in ringlets, each curl is brushed out separately over the hand. In dressing in waves, three depths of waves are brushed out over the fingers at once. Use a brush in which the bristles are set far enough apart to easily penetrate the hair. Apply a small amount of paper wave oil while brushing.

After brushing out, place the wave with the fingers and apply a net.

In placing the ringlet in the paper, care should be taken that the ringlet is not larger than the space allowed for it. Otherwise the curl will be uneven, thus giving a kinky effect.

CHAPTER XXII.

PERMANENT WAVING

Permanent waving is that state or condition under which hair is caused to wave or curl.

The name permanent wave is greatly misunderstood by the general public, and, in truth, the name PERMANENT contributes to this. Of course, the hair that is waved or curled is permanently waved if waved correctly. But the general public does not take into consideration that the wave grows out. The operator giving a wave will save herself quite a bit of trouble by explaining at the time the wave is given that the wave will grow out. As hair on an average grows approximately one inch every five weeks, the permanent will last from three to six months. Many of the general public are under the misapprehension that after the permanent is given, the hair will be naturally curly thereafter for all time. As this is an impossibility, their mind should be disabused at the start.

As there are different ways of obtaining curly hair, as naturally curly hair, permanent waving, marcelling, etc., it is well to understand the basic principles governing them. Using a measure or form one inch square and filling this with a strand of hair, the form will hold from 100,000 to 230,000 individual hairs to the square inch. Naturally, curly hair rarely exceeds a count of 115,000 hairs to the measure. Thus we see that naturally curly hair is generally coarse. Fine hair may have a tendency to curl, but has not the strength to draw the hair into a curl under ordinary conditions.

By the use of the marcel iron, paper curl iron, etc., by the use of heat and pressure, the hair is baked and forced into a wave. This, however, does not change the hair structure materially nor permanently, so the hair upon being moistened becomes straight.

In permanent waving, the hair structure is rendered porous by the action of the steam and the alkalies, and the shape of the cells are changed somewhat by the tension exerted upon the hair and by being wrapped upon a piece of metal while in a softened condition. As this process takes place under the steaming process, the change is made permanent as soon as the hair has set. Located in the hair is what is known as sebaceous matter. This sebaceous matter is a hard wax-like compound, which gives to the hair much of its elasticity, acts as a filler to the hair, and gives the hair its natural gloss. It also acts as a protective coating to the hair. In permanent waving, part or all of this sebaceous matter may be removed or altered by the steaming process, thus allowing moisture to get to the hair. Therefore, permanent waving accomplishes two things—it opens the hair structure, allowing the hair to absorb moisture. This moisture absorbed by the hair causes the hair to expand laterally, thus broadening the hair and at the same time shortening it. Secondly, it changes the hair structure so that this broadening upon the absorption of moisture causes the hair tc bend at the certain places where pressure has been exerted, causing a wave or curl. Therefore, it is apparent that in a very dry climate the wave will require more moistening and more care than in a damp climate such as the seashore.

As we now have the reasons for a permanent wave, let us take up the necessities for permanent waving. For all permanent waves, by whatever method used, there are certain necessities. First, there must be steam. Second, an alkali is a necessity. Third, an apparatus for generating the steam. Fourth, the steam must be held in proximity to the hair, therefore, a method of encasing the hair is necessary. Fifth, a pad or protection measure to keep metallic instruments and steam from reaching the scalp and burning the scalp, is necessary. Sixth, the hair must be under tension on something to cause the hair to wave, so a curler or rod is necessary. As the wave varies according to the amount

of hair wound on this rod, the amount and kind of alkali used, the amount and length of time subjected to the steaming process, whether bleached or not, and numerous other items, it is essential that the operator have a working knowledge of human hair.

As there are numerous machines, devices and methods of obtaining a permanent wave upon the market, we will not go into these, as they are explained by the different manufacturers of machines. However, they must of necessity contain in one form or another the essentials given above. Let us analyze these necessities and see what we need.

First—An alkali is necessary. An alkali softens the hair so as to allow the penetration of steam. This alkali, if too strong, will emulsify all the natural oils and waxes in the hair, causing the hair to become brittle and harsh, lose its elasticity, and as the hair is combed or brushed, to snap off. A certain amount of saponification of these oils is necessary or the steam would not penetrate in the short steaming time. On the other hand, too weak an alkali will not saponify the natural oils and allow the steam to penetrate. When this occurs, you will have very little wave and this will not last. Under the old borax processes, a large amount of borax was used. This was incorporated in the tube itself or in a pad. Upon heating, this borax in solution with the moisture passed from the pad to the hair. Quite naturally the outside of the hair strand was subjected to a greater amount of alkali than the hair next the curler or rod. This sometimes caused the hair to have light-colored spots in it, as well as weak points, where breakage often resulted. As for the alkalies used, there is, of course, the old stand-by—borax. This by itself often causes harshness and as borax beads easily, often causes hair breakage. It also has the disadvantage of often changing the color of the hair. Next is soda bicarbonate or baking soda. Sodium bicarbonate compounds have several drawbacks. Upon the completion of the wave, the hair feels slick and greasy. Sodium carbonate as well as borax waving

compounds have this tendency of changing the color of the hair. Both have a bleaching tendency as well. Another reason that these chemicals are not being used by manufacturers is rewaving. The percentage of possible good waves by the use of these chemicals is so much smaller than by the use of the modern blends, that it is too costly for the operator to use them. These chemicals, in order to obtain penetration, require a longer steaming time for the wave to be lasting.. Sodium carbonate compounds, in order to be effective, should be graduated in alkali strength into at least four different strengths. In fact, it was at the time of the introduction of sodium carbonate compounds into the permanent wave industry that standardization of the alkali strength of solution was first used. The alkali was first standardized by titration against a known strength acid. This gave an alkali of a definite strength for certain types of hair. This was then diluted to form different strengths of solutions for less resistant hair and placed on the market as different solutions. By this method a near approximation to the amount of alkali required to saponify the oils and waxes in the hair was reached and a decided improvement was shown in the quality of permanent waving over the older hit or miss methods. Yet the difficulty of rewaving over a heavy compound, as well as change of color in the hair, remained. At the same time the old sodium carbonate compounds had the difficulty of giving a metallic sheen to some blond and light-colored hair. Manufacturers were continually experimenting at this time to effect a combination of chemicals that would increase the possibility of rewaves. It

B—After Waving. A—Before Waving.
Illustration No. 30.

was at this time that ammonia and ammonia salts in combination with other chemicals entered the field. These compounds of ammonia appear to have every-

thing in their favor, as they form a gas which will penetrate all parts of the hair strand, will set more quickly, penetrate the hair more easily and any excess is easily removed after the wave is given. These ammoniacal compounds are graduated by most manufacturers to conform to the hair strength and degree of porosity of the hair. Some manufacturers accomplish this graduation according to hair color. As it is a well-known fact that blonde hair, as a rule, is fine and a black head is generally coarse, this graduation may be made according to color. Also, ammonia as well as many of the permanent waving compounds have somewhat of a bleaching action, this also is taken care of by graduating the degree of alkali to the color of the hair. Therefore, we see that some method of taking care of the degree of alkali that is applied to the hair is necessary to conform to the structure of the hair.

The latest types of compounds and those used by the manufacturers of croquignole machines, are the sulphite type of solutions. These are a decided forward step in permanent waving. The proportion of good initial waves is much greater with this type solution than formerly. The proportion of good rewaves is so much greater than formerly, there is no comparison. White hair may now be waved with but a minor chance of discoloration. The hair is left in better condition after the wave than was formerly believed possible. Metallic sheen is no longer a possibility except on heads where an application of some chemical was made before the waving process. It is well to remember, however, in rewaving it is impossible to obtain as good a rewave over hair which has been waved by the older solutions as rewaving over the sulphite compound. For example. The initial wave was given by the sulphite compound. Rewave is given by the older process. By giving the initial wave with a compound which leaves the hair in good condition, rewave will probably be good. But in rewaving the third time, difficulties will be encountered. In the first rewave, by the use of the old type solution, the hair was placed in poor condition. Upon attempting to rewave the second time, a

poorer wave will result, no matter what type of solution is used. At times this is taken advantage of by unscrupulous persons attempting to sell out-of-date formulae and compounds. A demonstration is given of a rewave. Quite naturally, the head to be demonstrated upon is picked so that it will be a sulphite-processed head. The demonstration is a success, providing the compound will wave at all. The operator then buys the formula or compound but is flooded with difficulties when she attempts to do her rewaves over. She then faces the necessity of doing a quick about face and obtaining some good solution. However, she has yet to explain to her customers why she cannot give them as good a wave as formerly. There are also many other points in favor of the sulphite compounds, such as waving of bleached hair that was previously considered impossible, although it is impossible at the present time to wave some bleached hair that is too badly damaged. These new type compounds require the services of a chemist in their manufacture and compounding as they require a close standardization and careful blending. They do not allow of a wide variation in alkali strength and blends chemically. However, after their manufacture, in the hands of a competent operator who understands them, these compounds have great possibilities. They were first introduced as a wet wrap on the croquignole machines. However, they are being adapted more and more to the spiral machine, both as a wet and a dry wrap. Different manufacturers package these compounds in different manners. Some mix them with glycerin to a paste to be dissolved in a certain amount of water. This has one disadvantage in that the hardness or softness of the water in different localities varies and so will affect the strength of the solution. In proportion to this variation in the hardness of the water, the strength of the solution made by combining the paste and the water will be either weaker or stronger than the normal strength as given by the manufacturer. Also seasonal changes will have an appreciable action on the softness of the water, if ordinary tap water is

used in making the solution. These difficulties are eliminated by the manufacturer who makes the compound into solution, as the solution is standardized to a given strength at the laboratory. Powder compounds have the same difficulty as the paste.

Next in the list of essentials for permanent waving is steam. To obtain this steam, it is necessary to have a heating device. This is the so-called heater in the spiral machine and ordinary croquignole and is the element inside of the rod on the internal heating croquignole. The type of heater used to convert the moisture to steam has very little effect on the wave, no matter which of the three types of heaters is used. There are some advantages and some disadvantages in the construction, such as cost, life of the heater selected, ease of operation, weight, etc. Machines, so-called, are in reality a method of placing a number of heaters on an electrical circuit, together with a switch for controlling the circuit. Some machines use a transformer to reduce the voltage from the ordinary 110 volt light circuit to a lower voltage. Whether this is an advantage is problematical, except from a sales standpoint. With the internal heating croquignole, the heat is supplied by the element inside the rod. There are some advantages and some disadvantages to this type of machine. The principal advantage is weight, or rather lack of weight. The principal disadvantage of the application of longer and greatest heat to the weakest part of the hair. Another disadvantage is the necessity of a transformer with this type of machine. The disadvantage of longer heating to the weakest part of the hair may be overcome to a certain extent by weakening the alkali applied to the ends of the hair, or by dampening the ends of the hair with water before applying the solution. Nevertheless, when summed up, the heaters or machine as sometimes called, serves one purpose only, and that is to supply the amount of heat necessary to convert the moisture in the pad or strip to steam and hold this temperature until the steam has obtained reaction on the hair.

Steam, by its action on the cells of the hair, render

the hair porous. For instance, a hair before being waved will appear as in illustration No. 30A, while after being waved will appear as in illustration No. 30B. Thus we see that the scaly covering of the hair is opened up so there may be an absorption of moisture. This action also takes place in a lesser degree under the scales where the steam penetrates. As the steam penetrates, it causes the hair to broaden and shorten. This, when the ends of the hair are fixed or tight, causes a tension of the hair. This softening of the hair, by being subjected to steam, is the basis of per-

Illustration No. 31—Hair Before Waving.

manent waving. Under the first methods of permanent waving, steam was generated by means of hot irons which came in contact with the wrappings of the hair. This was a slow process, as it required constant reheating. Next came the gas heater which was somewhat better than the old iron method. Finally came

Illustration No. 32—Hair After Waving

the electric heater. This essentially does the same work as the old iron and gas heaters, but is many times more convenient and safe. Electric heaters may vary somewhat in construction. One manufacturer wishes a quick high heat, so the electric element is wrapped to generate so much heat in a given period of time. Another manufacturer, believing that an even steam heat over a given period of time is better, has the element made so the heat is not so intense, therefore, the

heater does not generate steam so quickly. This length of heating time depends much upon the kind and degree of alkali used by the manufacturer. As it is possible after the steam is generating to obtain only so high a temperature, which is approximately the boiling point of water, all heaters develop the same height of temperature, which is approximately the boiling point of water. Water is used on this account. If oils or greases were used these would gradually raise the heat to such a degree that the hair would be fried or burned to a crisp. There are many so-called oil methods for permanent waving upon the market. These in reality contain so very little oil that the name oil method is a misnomer. These were originally made to catch the public fancy, inasmuch as the general public appears to have the erroneous idea that any oil is beneficial to the hair. These so-called oil methods depend upon the steam for the permanent waving effect the same as other methods.

Third in the permanent waver's necessities is an apparatus for holding the steam in proximity to the hair. This is accomplished by the use of a pad or strip containing moisture and a covering. These coverings may vary greatly. Under the older processes, such as the borax tubes, this covering was accomplished by the use of paper tubes. These paper tubes were pinched at the bottom to close the lower end so steam would not come in contact with the hair. The upper end might be pinched, plugged with cotton or closed in other manners. At first the lower end was tied with string or cord. This was eventually superseded by clips which gripped the tube and when pressure was exerted caused the tube to fit closely against the hair at the scalp. These tubes also acted as distributors of the heat. These are gradually being superseded by strips or pads and foils or paper. These are much quicker and more convenient to apply as well as being less trying to the patron's nerves. As the foil is easily pinched into shape and closed at either end, much of the old pulling of the hair is eliminated.

With the croquignole machine, the paper is generally used, as there is no advantage in the foil over the paper on this type of machine. As important as keeping the steam in proximity to the hair is the necessity of keeping the steam or hot alkali from contact with the scalp. This is accomplished by the use of protectors. With the open type machine, a clip is used to close the lower end of the pad or tube around the hair. Next a composition or bakelite clip is used between the end of the rod and the scalp. This places a non-conductor of heat and at the same time a solid substance between the scalp and the end of the rod. When the felt is inserted between the composition or bakelite clip and the scalp, a small amount of air is allowed to pass thru this space and carry off the heat. This allows the patron to obtain her wave in some comfort. Care should be taken that the curler does not slip thru this protection, as this will allow the steam to reach the scalp and burns will ensue. With the croquignole machine a different type of protector is used. The rod or curler is securely held by the clamp protector so it cannot come in direct contact with the scalp. The two faces of the clamp that come in contact with the hair strand are faced with rubber. It is essential these rubber faces be pliable, so there is a complete closure as these rubbers grip the hair and hold it while the rod is tightening. If these rubber faces are not pliable, the hair slips thru, allowing the scalp to be pulled up between the faces of the clamp, endangering the patron thru steam coming in contact with the scalp during the steaming process. Between the protector and the scalp, some manufacturers use slitted papers or slitted felts. These are an additional protection but also have the disadvantage of placing the first wave slightly farther from the scalp. As none of the steam or metal instruments which are hot should come in contact with the scalp, a small pad is used to keep these from touching the scalp and insulate the heat from the scalp.

The fourth necessity is a rod or curler. These may be of different sizes and vary from the straight rod to the complex automatic or self-winder. Using the sim-

ple rod or rod form, there is a split in the end. The strand of hair is first divided off and a loop of linen cord is thrown around the hair next the scalp. This is drawn tight and the two ends drawn thru the cleft in the end of the curler. Each separate end is then brought around on opposite sides of the curler and again passed thru the cleft and drawn tight. This constitutes the tie. The hair is then wrapped in any one of the numerous ways of winding and is finally tied on the curler at the end of the hair by winding a cord around the end of the hair and tying very tightly. With some types of rods the tension is secured by twisting, by means of a pin which goes thru the rod, the cleft on one end and a grip for twisting on the other. Another rod or curler known as the self-winder has a device for tying which eliminates the use of the cord. These also have a device attached by means of which the hair is wrapped in a flat wrap. These are very convenient, their only objection being the one size rod.

According to experiments by manufacturers of permanent waving apparatus, the size of the rod when used for straight winding has an appreciable result on hair breakage. The experiments of one manufacturer tend to show that any curler with a diameter of less than one-fourth inch has a tendency to produce hair breakage. On the other hand, a curler larger than one-third inch produced only 75 waves out of every 100. These experiments, then, point out to us that too small a curler will lose customers for us on account of hair breakage, while too large a curler will lose customers for us on account of no wave resulting. As the size of the strand also must be taken into consideration, there appears a difficulty. The size of the strand at the scalp will naturally be larger than at the ends of the hair. If we use a curler which is an average for the strand, the hair next the scalp will naturally have a loose wave, while the ends of the hair will have a tendency to become frizzy. This is overcome by some manufacturers by making a tapered curler

which allows for the strand being thicker at the scalp and as the hair is wound on the curler and becomes smaller, the diameter of the curler gradually increases to compensate for the smaller amount of hair. These curlers will be found to give a more even wave according to the amount of time expended upon them, especially with the flat winds. Thus we see that the larger the strand of hair the smaller the curler, within limits, and the smaller the strand of hair the larger the curler.

For winding the very short hair at the back of the head, it will be found convenient to use either one-inch gauze bandage or what the toupe maker knows as wool crepe. The gauze should be moistened and placed over the strand of hair as it is wound upon the curler. This grips the hair and holds it firmly upon the curler. Slightly more expensive is the wool crepe, which is used in practically the same manner except it is placed with the hair.

The same tenets hold in croquignole waving as in spiral waving. It must be remembered that in croquignole waving the rod size is constantly increased until the strand of hair is completely wound on the rod. That is, the outside of the first turn of hair around the rod is the rod size over which the second turn of hair obtains its rod size. Each additional wrap of hair builds up this rod size. It is therefore apparent that the wave on the outside turn of the hair around the rod is much larger and therefore much weaker than the hair which was first wrapped on the rod. Particular attention should be paid to this when waving resistant hair and small blockings used. On the less resistant hair the larger rod sizes may be used to overcome any tendency to frizziness. As between croquignole waving and spiral waving, it will be found on an average that the spiral wave lasts longer but the croquignole wave is more easily dressed. Advantage of this is taken in the so-called combination wave. The wave at the part is given with the spiral. The remainder of the hair is waved with the croquignole.

This gives a lasting wave on the top and a tendency toward easier dressing when the spiral wave is combed in with the croquignole.

Fifth in the list of essentials and the one without which all of the other items are valueless, is "knowledge of permanent waving." Without this essential all of the previous essentials are valueless. This essential covers a multitude of subjects. To cover the most essential ones is all we will be able to do in this work. These may be divided into the following classes:

1. Wrapping.
2. Steaming or heating.
3. Dressing.
4. After-treatment.
5. Bleaches as related to permanents.
6. Dyes as related to—
7. Henna Compounds, Hair Restorers, Hair Tonics, etc.
8. Fallacies of permanent waving.

By wrapping we mean the placement of the hair on the rod or curler. These for practical purposes may be divided into three classes. The straight wind or generally known as the flat wind, the half twist and the full twist. There are many variations of these three winds, but these three winds with their variations cover practically the whole field. In the flat wind, after tying the strand of hair on the curler, the hair is wound over the top of the curler away from you and under the curler toward you. This is not so important in the flat wrap, but in using the twist wraps, it will be found to be very important. There

Illustration No. 33—Hair After Waving, with Flat Wrap.

are two methods of wrapping known as the dry and wet wrap. With the dry wrap, as the name implies, the hair is wound dry upon the curlers. The wet wrap

is handled in a different manner. For wet wrapping the hair should be moistened before wrapping either with water if the borax compound pads are used or with the proper lotion if the lotions are used. The hair should have an even tension all the way thru on the curler after wrapping.

As it is first necessary to divide the hair into sections for permanent waving, it will not be amiss to take this up first. The average permanent wave head has a scalp area of 120 square inches. Of course, this will vary, some having a larger scalp area and some less, the range being from slightly over a 100 to 130 square inches. Considering the wrapping only and not the alkali or steaming time, if the head was divided into one-inch squares we would have 120 strands of hair on 120 curlers. This may be done, but is not practical, as the winding would take too long, too much weight would be imposed upon the head and the scalp would be exposed to too long a heat for the baking. If 120 curlers were used, the curl, if wound tightly and baked correctly, would be very small if wound on a ⅛-inch rod. This would make what is known as a very tight curl. Very few women care for this small a curl at the present time. In classing the different wraps, it will be necessary to take them up in reference to the wrapping only and the effect they have and treat them as to steaming time and alkalies in other sections. Next we have a one and one-half inch square. The average head will then be divided into 60 strands. This is a small wind for a head and is as small as most operators use. This will produce a wave which is not a kink, neither is it a loose wave. It is what is known as a small wave. By dividing the head into two-inch squares, only 30 curlers are used. Unless the hair is very thin, this will make a large loose wave. Thus we see that the tendency is toward fewer squares on the head to procure the broader wave effect. Some manufacturers seldom go beyond 35 to 40 curls with an average of about 32 curls to a head, and on the ordinary croquignole with bobbed hair, an average of

28. Of course, longer bobs will require more curls. Much depends upon the method used as to the division and number of squares to the head. As to the advantages and disadvantages of the large and small strands of hair, the small strands are more evenly wound, thus producing a more even wave, especially in the flat winds. As the hair, being wound on the curler is carried around the rod, with the large strand, the hair next the rod naturally is wound in a smaller circle than the hair wound over it. Thus the hair next the rod will have a smaller wave than the outside hair. This is especially noticeable when less than 30 curlers are used for an entire head. When less than 30 curlers are used for a head, there is only one consideration and that is the price received for the work. On very cheap waves as low as 12 curlers are used. This does not produce artistic work, very little wave and has only the one advantage—that of being able to put out a very cheap wave. It is well to remember that much depends on the texture of the hair in blocking. On extremely fine hair, where the hair is scanty on the head, if small blockings and small rods are both used, there will be a tendency to frizziness. On the other hand, a large blocking of fine hair on a large rod, when the hair is

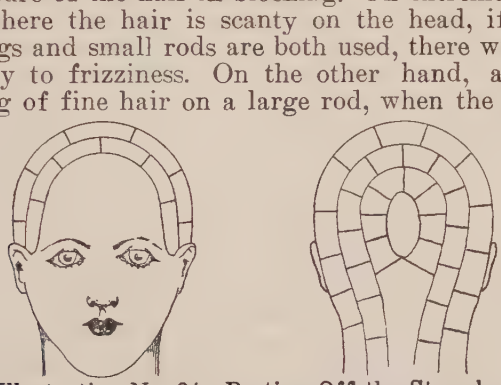

Illustration No. 34—Parting Off the Strands.

heavy, will produce a weak wave. It is necessary for the operator to take into consideration both the texture and amount of hair for each curl in order to obtain the best results. In waving coarse hair this is especially necessary, as too small a rod or amount of hair on the rod will result in the wave being so tight

that the finished wave will be hard, if not impossible, to place in waves. Dividing the hair into sections appears to be quite a difficulty to the beginner. The main point to keep in mind is the lines should run approximately straight around the head to give an even wave and have the wave run in a continuous unbroken line. If the operator will follow the lines as given in the illustration, the hair may be dressed as a part on either side or as a center part, and have very little difficulty in dressing the wave, providing the hair is wound an even distance from the head. There are numerous ways of dividing the hair, however, and only trials will demonstrate which is the most satisfactory for each operator. As the wrapping is the essential part of the permanent wave, it should be done correctly.

With the flat wrap as stated before and shown in illustration No. 33, the hair is wound so as to produce the letter W with rounded connectors. This has one advantage. There is not liable to be so much hair breakage as in the twist wraps. This wrap, however, will not produce what is popularly known as the marcel wave, unless it is dressed to produce it. This wrap, rather produces more of a round curl. Some manufacturers use this wrap exclusively. This also is the wrap produced by the self-winding curlers of different makes. This wrap has the disadvantage of not producing the edges necessary for the marcel curl, altho operators everywhere are adopting the flat wind more and more, as it may be dressed neatly. This is the wind most used for finger and water waving.

The half twist is advocated by some manufacturers, and if handled correctly produces some wonderful results. This if wound correctly gives the marcel appearance and with practically no hair breakage if wound correctly. At the same time the hair must have the twist at exactly the same place on the curler if an even wave is desired. In winding the half twist, the hair is first attached to the curler. The hair is then given a short half-twist, and the hair wound flat

around the curler to exactly the same point, when another half-twist is given the hair in the same direction. Holding the curler in the left hand and gripping the hand with the right the half-twist is clockwise. This wrap is continued to the ends of the hair.

The double half-twist, advocated by some manufacturers, is started the same as the half-twist. That is, it is started on the curler with the flat wind and a half-twist given clockwise. It is then wrapped flat half way around the curler and a half-twist given counter clockwise, and then flat to the point where the first twist was given the hair, where the same operation is repeated. This wrap is more difficult to wrap evenly than the half-twist and any irregularities appear more sharply. We are unable to see any advantage over the half-twist. There is also the disadvantage of more liability of hair breakage in too much twisting. Some operators obtain a more marcel-like appearance with this wrap than the one previously given on account of the many sharp angles given the hair when removed from the curler. This wrap should not be used on coarse hair, as more breakage will result than with the other two wraps. Indeed, it is much better to wrap coarse hair with the flat wind. With coarse hair great care must be exercized in the winding, especially in the baking, and very nearly as great care in the selection of the alkali used. Coarse hair requires less steaming time than fine hair, as a general rule. If the same steaming time is used, the hair will often become harsh, brittle, dry and frizzy.

The full twist is not used at the present time. At one time it was quite widely used, especially by speeders. It is much easier and speedier than the other wraps, but the results are rather terrible to behold. Hair breakage on an average is double that of other wraps. It is impossible to dress the full twist into anything resembling a wave. It more nearly resembles a frizz or wool. For this reason at the present time with the competition in permanent waving becoming

more keen each month, the operator using the full twist is liable to find herself without any customers to work upon.

When winding it is necessary for the operator to wind the hair very tight upon the curler as the amount of tension upon the hair causes an appreciable difference in the curl. Indeed, if the hair is simply wound upon the curler and no tension is exerted upon the hair, there is a liability of having no wave after the shampoo. On the other hand, using exactly the same wrap, the only difference being the tension of the hair, the hair under the greater tension will be found to have the tighter curl.

Numerous means are at times used to obtain different effects in waving. Among these may be mentioned overlapping and backwrapping. In the use of the overlap, each turn of the hair around the rod, when the flat wrap is used, is allowed to overlap the preceding turn slightly. This has a tendency to throw the hair into a slightly tighter curl and at the same time to give a more definite ridging. Backwrapping on the other hand is used for the purpose of obtaining a tight curl on the ends of the hair. The premise is taken that the ends of the hair are dry and therefore will absorb some moisture from the hair over which the ends are backwrapped, thus the ends will not dry more quickly than the remainder of the hair on the rod. By backwrapping the ends the amount of moisture is increased at this point and there is a greater tendency to obtain a curl instead of a frizz, as would be the case when the ends are wrapped directly on the rod and therefore dry more quickly than the remainder of the hair on the rod. What is also termed backwrapping, is used when the patron wishes very little curl at the end but more curl at the root of the hair. Generally this is on long hair, where the ends are used in a hairdress. This backwrapping is accomplished in a different manner than the former backwrap for tight ends. Wrap the length of the hair on the rod and at the point where less wave is to start, tie the

hair on the rod by wrapping with cord as you generally do the ends. Then the remainder of the hair which is to have very little wave is loosely wrapped back over the wrapped strand and caught down with cord. This loosely wrapped hair should have no tension placed upon it. In this manner long hair may be waved so the ends have very little curl in the ends.

In wrapping the croquignole, it is necessary that the hair be placed evenly on the rod and also due care taken that the hair tightens evenly. A careless operator quite often will have the hair on one end of the rod tight, but quite loose on the other. This will cause an uneven wave, as the hair which was the tightest on the rod, after one or two shampoos, will show an appreciably tighter curl. In catching the ends on short hair, some operators use crepe wool, others use paper. If the crepe wool is used, it should be slightly dampened so it will not absorb the moisture from the permanent wave solution. On account of the absorption of the moisture by the ends of the hair, which are as a rule more porous than the rest of the hair, the ends will be dryer and have more of a tendency to dry baking when paper is used to wrap the ends in.

Baking, or, in reality, steaming varies greatly with the machine and alkalies used. One manufacturer of permanent waving apparatus has designed his supplies and machine to steam the wave for seven minutes. Another manufacturer for the same hair requires fourteen to seventeen minutes, while some machines require as high as forty minutes for some textures of hair. These steaming periods therefore vary with the machine and supplies used to obtain the same results. However, the same caution applies to each. Over steaming causes the hair to break. On white hair, too high a heat or the steaming process continued over too long a period, or the moisture allowed to become too low, will cause a yellow discoloration. When steaming white hair, apply the heat for the required length of time, then remove the heater and coverings as quickly as possible, as the two or three minutes time that is

ordinarily allowed for absorption of the steam with the heaters on, will often cause white hair to discolor. Quite often there will be a streak of yellow in white hair before the wave process is started. Under the permanent wave process this will show up stronger as the scales of the hair are lifted. If this yellowness was caused by dry heat such as a marcel iron, very little may be done to overcome this except to cover it with bluing rinse. If, however, the yellowness is caused by organic matter in the hair, the larger proportion may be removed by applying a mixture of equal parts of alcohol and 17 volume peroxide warm to the hair as the heaters are removed. Too short a steaming time will not allow enough steam to generate, nor allow the alkali or steam time enough to penerate the hair, and the degree of wave will depend upon the degree of penetration of the steam and alkali. Another point which it is well to remember is that alkali, winding and other conditions being the same, fine hair requires a longer steaming time than coarse hair. One point which is of importance to the operator is to allow the hair which is steamed time to set on the curlers after removing the heaters and outer coverings. A few moments at this time will have much to do with the set of the hair. As the hair has undergone a softening process with the steaming, it should be cold or very nearly so before removing from the curlers. This allows the contraction, which opens the cell formation. Although the greater part of this work is accomplished before the removal of the heaters, if all the heaters are removed at one time, then the pads, tubes or flannels, by the time these are removed, enough time has elapsed to allow the hair to cool and the curlers may then be removed.

On the croquignole machine this removal of the outer coverings, together with the heaters, requires much less time. It is necessary, therefore, to dry the hair under the hair dryer, which applies a much lower temperature than the heater and therefore gradually cools the hair.

On croquignole machines it is necessary at times to obtain a strong curl at the scalp and less curl on the ends, although the reverse is generally true. If a weak curl at the end is desired, and the new type solutions are used, the ends may be wet with water, which will naturally dilute the solution and thus weaken the curl at this point. It should be remembered that at no time during the steaming process should the hair be entirely dry. Perfect steaming would be converting the moisture to steam and have all the steam absorbed but never having applied heat with the hair dry. This in conjunction with a perfect strength alkali, that is, an alkali which would exactly saponify the amount of oils and waxes in the hair to allow steam penetration, and not strong enough to harshen or damage the hair, would give the maximum of perfect results in permanent waving.

Of very nearly as great importance as the wave itself from a business standpoint is the dress after the wave. A poor wave is often dressed to give a very creditable appearance. While, on the other hand, a very good wave, if not properly handled, may make a poor showing. As the patron is paying what she considers a good price for the work, if the wave does not show well at once, she is disappointed. No matter how well the wave appears in a week or so, she will never be entirely satisfied. Therefore, after the wave, be sure to give especial attention to the dress. Many operators, directly after the wave, use the hot oil treatment. This is especially beneficial where the climate is conducive to dry hair conditions. Some operators use mixtures of oils while others use the oil compounds which are prepared by different manufacturers. As a rule, it will be found more economical to use the oils blended by the manufacturers of cosmetic preparations. However, if a person wishes to experiment, combinations of the different oils such as castor, olive, special kerosene, almond, 890 mineral, crude, rape seed, earth nut, camelina, soya bean and others may be tried. It is our experience that no one oil contains all the neces-

sary compounds for an oil treatment. If the oil treatment is given, it should be with one purpose in mind —to replace the minimum amount of oil that the hair requires. After the oil treatment, the hair should be shampooed with a pure soap. For this purpose no better soap may be had than a pure grade of castile. The cheaper grades of castile will not do for the cosmetician's use. As only a small amount of castile is used for each shampoo, the difference in cost is not worth the shampoo. After the shampoo, a dressing may be applied and the hair either finger waved, water waved or what is known as the push wave used. At this point, let us state, *no strong alkaline lotion* should be used for the dressing. Enough alkali was used on the hair for the wave process if used correctly. A strong alakline solution is not only unnecessary but may be harmful. Some operators prefer a lotion which has considerable body. If the preparation is composed of the correct ingredients, this body is unnecessary. In fact, it may be a detriment, as the so-called body has a slick, slimy feel and leaves a deposit on the hair, which, when it dries, leaves a powder in the hair. This powder deposit closely resembles fine dandruff and may not be especially noticeable. At other times the patron may remark that she has never had dandruff until she had a permanent wave. Some wave lotions, or rather wave dressings, are so heavy and have so much body that the hair is stiff, and has a board-like appearance. As the aim of the permanent wave is to give a natural wave appearance to the hair, these lotions should be avoided. Under Water Waving and Finger Waving different methods of dressing are discussed.

As the bane of the permanent wave operator is hair which has had treatment of any one of numerous kinds, these may be loosely classified: First, different preparations which are used in scalp treatments; second, bleached hair; third, hena compounds; fourth, hair restorers; fifth, white hair.

Of the different preparations which are used in scalp treatments, the one which most often is noticed by the operator are preparations containing resorcin. Resorcin will hardly be noticeable on a dark head when permanently waved. But where it is particularly noticeable is on white or blonde heads. On these heads, after the permanent wave, the hair will appear a brownish yellow, much as if the hair were burned. Sulphur either by itself or in combination also has a yellowing effect on the lighter colors of hair. Where the preparations used in the scalp treatment are distinctly alkaline and strongly alkaline and are penetrating, the alkaline reaction is often too severe. Iodine preparations, either when given internally or the decolorized iodine preparation when applied externally, may, under the heat of the permanent wave, develop color. Bromine or bromides also often have this effect, but in lesser degree than iodine. The main issue to watch when permanently waving a head which has had scalp treatments and the main question to ask is, "Has any preparation been applied which will discolor the hair?" If so, the only remedy is to remove this preparation before beginning the wave.

Second, bleached hair. By bleached hair we mean that hair which has undergone a bleaching treatment, or upon which chemical bleaches were used. Of course, we all recognize the fact that all hair, except that very close to the scalp, undergoes some bleaching action by the sunlight. Also the action of the soap and alkalies when the hair is shampooed is also somewhat bleaching in action. Therefore, it is only reasonable that the hair is much stronger at the root than at the end. This upon testing may be proven conclusively. Therefore, in permanent waving, where the bleaching action is upon a part of the hair only, it is very difficult if not impossible to get an even wave. As the hair which has undergone the bleaching action will react more strongly to the same strength alkali than that hair which is closer to the head and has a greater resistance. This action is partially overcome by one manu-

facturer by the use of strips of various strength alkalies. These are only partially successful, however, as it is impossible to graduate these exactly to the resistance of the hair. Very few manufacturers make any allowance for this condition whatever. For this reason it is better to leave hair which has undergone a severe bleaching entirely alone, unless the operator is entirely familiar with the alkalies and their graduation of strength.

With the sulphite type of solution, if the hair is evenly bleached, a test curl may be given. A weakened solution should be used, however. If the hair mats or snarls, it is an indication that the alkali is too strong. If we will remember that simple rule, namely:

There are only two things which will cause hair to mat or snarl, BAKING DRY OR TOO STRONG AN ALKALI, numerous bleached heads may be waved satisfactorily.

By henna is commonly meant what is known as Egyptian henna. This is the leaves of a plant. Egyption henna has practically no reaction under the permanent wave process unless at times it is to bring out a slightly more red tint. Egyptian henna should however, not be confused with the various henna compounds upon the market. These, as a rule, are not dependent upon the henna in them for the coloring matter, but upon different dye and dye substances. These dye substances are usually of metallic origin and consist of lead, silver, copper or other metallic compounds. These form a coating around the hair which the alkalies will not penetrate, and upon which the steam has very little action. At other times the action of the alkalies are violent, causing not only difficulty but ofttimes disaster. Practically the only sure way of waving a head which has chemical henna upon it is to test a strand first. That is, take a strand and put it thru a regular wave process the same as the rest of the hair will necessarily have to go thru to obtain a wave. Test this strand after the wave for strength, show it to the customer, and if you think there is

enough wave and the reaction is all right for a wave, the customer agreeing, give the wave. This test should also be given in cases of dyed hair. On some heads which have undergone dyeing, there will be practically no reaction, while upon another head dyed with exactly the same dye, there will be a noticeable change in color. It is much better for both the operator as well as the patron to be aware of this color change which is going to take place before the wave rather than after the wave and color change has taken place.

Hair restorers have caused many an operator a sleepless night and the loss of many permanent waves. Hair restorers are as a rule a progressive dye. That is, when the preparation is applied, no great change of color is noticeable. However after a few applications of the preparation and after the light and heat of the scalp has allowed the preparation to oxidize, the hair gradually darkens. As these preparations are composed in the main of iron, lead, zinc or other metallic salts, the sunlight oxidizes them. These preparations form a coating around the hair and also have some penetration. Under the permanent waving process these metallic compounds undergo the steaming process and at times are reduced to the metals. In these cases where this occurs the hair may turn any one of numerous colors. Any of these colors from the green shades of copper to the slate colors of lead are disastrous to the permanent wave. There is only one remedy for this. Under ordinary conditions, so-called sage and sulphur compounds turn dark and sometimes black. This is also the condition where iron compounds are on the hair. Do not wave a head until ALL of these compounds are removed. This requires much treatment and very much patience. For the removal of these compounds see treatment under Hair Dyeing.

White hair, if handled correctly, may be waved without discoloration, provided there are no chemicals involved. The main item to watch in waving white hair is the steaming and moisture. If the pads or tubes become entirely dry when steaming a white head, you

will generally have discoloration. It is our experience that white hair becomes discolored in the last two minutes of the given steaming time. After the removal of the white hair from the curlers and the shampoo, it is necessary or at least advisable to use a bluing rinse. Some operators use the old-fashioned clothes bluing. This is somewhat out-of-date, altho we will readily admit it has one advantage, that of being easily removed from the hair. However, more satisfactory results will be obtained by the use of methylene blue or methyl violet. One or the other of these is practically always obtainable at any drug shop. There is one caution in using these, however. Be sure you are right before you go ahead, for after using, these may not be removed. Therefore, have the druggist make up a certain strength of this so you will know how strong to use it. Also, many manufacturers have this solution made up for your use.

When permanent-waving dyed hair, it is well to remember that if the dye was applied without a softener, the hair is more resistant than the same texture of hair without dye, whereas, if a softener was used, such as peroxide, the hair is less resistant. By dyes we mean the commercial shop dyes and not compound hennaes. Dyed hair, therefore, unless pre-softened, will require more steam or a stronger alkali than that texture of hair ordinarily would. The simplest way with dyed hair, or for that matter any hair, is to test curl. If the hair is always taken down steam-damp, and there is any tendency to frizziness, matting or snarling, it is an indication that the alkali is too strong for that particular hair. In permanent waving there are only two things which will produce these effects: Baking dry or too strong an alkali. Therefore, if the hair is taken down slightly damp, we are not baking dry. This leaves only too strong an alkali, which may be corrected by using a weaker solution.

In conclusion, after you give a permanent wave, do not pull or stretch the hair too much for at least 24 hours. It takes practically this length of time for the

hair to really set. The less pull that is exercised upon the hair for 24 hours, the more wave you will have.

THE GOLDEN RULES FOR PERMANENT WAVERS

1. Be sure your machine is in condition before starting a wave.

2. In case of any mishap, as the patron fainting or any other cause, remove all the heaters FIRST and then tend to the patron.

3. Do not use supplies or machines until you are thoroughly familiar with them.

4. Be sure that all heat and steam is insulated from the head by proper means before starting the heating process.

5. Know what size wave your patron wishes and know you are going to obtain that wave before starting.

6. Know that you have everything that is necessary for the wave at hand before starting the wave. Nothing is more annoying to the patron than to sit and wait while the operator hunts for a missing necessity.

7. Plan your entire program for a head before you start. There is less likelihood of making a mistake.

8. Wind your hair tightly upon the curler. You will not pull the hair in two.

9. Be sure of your steaming time. Do not guess at it. Have a timepiece in view. If you are forgetful, write down the starting time. It is better to take the time than to take off the pieces.

10. Be sure you KNOW whether any compounds which will interfere with or cause the wave to be a failure are known to you BEFORE the wave is started. It is much easier on the purse and on the emotions to leave off the heaters than pay a damage suit.

11. Where there is the least doubt in your mind of whether any chemicals have been used on the hair, make a test strand. It is the quickest and the safest as well.

12. Never allow the hair to bake. Permanent waving is a steam process and every second that the hair is baked dry, the hair is damaged.

FINGER WAVING

At the present time, the process of setting the hair after a permanent wave or naturally curly hair into a wave is usually accomplished by the use of only the fingers and a comb. This eliminates the older method or water waving with water wave combs. Usually a finger wave lotion is used to set the hair and cause the waves to hold their position for a longer time. These lotions may be of different compounds, but no strongly alkaline solution should be used. The perfect set leaves no noticeable deposit upon the hair as do bandolines and similar preparations. By following the illustrations a general idea of finger waving may be obtained.

SIDE PART

STRAIGHT BACK

In the straight back the hair is handled practically the same, with the exception of parting as shown.

QUESTIONS

1. What is permanent waving?
2. How does permanent waving change the structure of the hair?
3. What is the structure of straight hair?
4. What is the structure of wavy hair?
5. What is the structure of curly hair?
6. What is the difference in process between marcelling and permanent waving?
7. What chemical reaction takes place in permanent waving?
8. What are the six necessities in permanent waving?
9. What alkalis are used in permanent waving?
10. What advantages and disadvantages are there to each?
11. What type of compound is used on the croquignole machine?
12. What difference is there in rewaving with the different chemicals?
13. If you were doing a spiral wave, how would you treat the ends to soften them?
14. How is the heat generally obtained in permanent waving?
15. What three types of heaters are there?
16. What is the difference between croquignole and spiral?
17. What are the three types of winding?
18. What advantages and disadvantages to each?
19. What are the average number of curls on a short bobbed head?
20. What effect does large and small blockings have on the curl?
21. What effect does large and small rods have on the curl?
22. What wrap produces the most breakage in hair?
23. What is meant by overlapping and what effect does it have?
24. In waving long hair with the spiral where very little wave was desired on the ends, how would you proceed?

25. What texture of hair requires the most steam? The least steam?
26. What difference would you make in permanent waving white hair? Why?
27. How do you remove yellow streaks from white hair?
28. What is perfect steaming?
29. What would be the perfect alkali?
30. How do you permanent-wave dyed hair? Dyed hair pre-softened?
31. How does bleached hair vary from dyed hair as to permanent waving?
32. What two things cause hair to mat or snarl?
33. How do you handle the short ends of hair?
34. What action does the permanent waving process have on hair restorers? Sage and sulphur compounds? Compound hennaes? Why?
35. What reaction has the permanent wave process over Egyptian henna?
36. What is meant by a combination wave?
37. What is the main point in steaming a head of hair?
38. What is the average growth of hair a month?
39. How long should a permanent last?
40. What kinds of string are used in spiral winding?
41. What kind of rubber are the faces of the croquignole ALWAYS faced with? Why?
42. Of what use are the rubber faces in question 41?
43. What are the protectors used in spiral winding? What is the use of each?
44. What are Rule 2, 4, 10, 11 and 12 for permanent wavers?
45. What effect does dry baking have on the hair?
46. What effect does too strong an alkali have on the hair?
47. What five types of compounds have a detrimental influence on permanent waving?
48. How do you treat a wave after leaving the machine?
49. How long does it take for a permanent wave to entirely set?
50. What is meant by a permanent wave machine?

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CHAPTER XXIII

SCALP

Nature originally endowed man with a coat of hair. Through the process of evolution much of this is now lost. When any part of the body is not used for generations, that part is gradually eliminated by nature. Much of our time is spent indoors where a covering for the scalp is not needed. Also the use of tight-fitting headgear cuts down the circulation. Together with these contributing causes of hair loss are nervous troubles, such as Alopecia Areata, systemic troubles, such as illness, overwork, diseases of the skin, which destroy the hair follicle or cut down the blood supply. Milder cases of these, with the exception of systemic troubles, are within the power of the cosmetician to aid and oftimes cure. Extreme cases, especially systemic, should be given into the care of a physician. Most of the troubles which the operator is called upon to treat are: Local skin infections, lack of blood supply to the part, muscle and skin which are not performing their normal functions through lack of exercise. These may be overcome by manipulation, proper antiseptic measures and stimulation. Frequently patients demand the impossible of an operator in overcoming these troubles. It should be impressed upon the patient in these cases that it has taken years to cause a loose and broken down condition of the scalp, and this may not be built up in a week. All any operator may do is assist nature to rebuild the morbid tissue. This is especially true where the general health is poor. It will naturally take a longer time to build up any part if the patient is anemic than if there is a rich blood supply to draw from.

Real benefit is given in scalp treatments and oftentimes the patient's future hair health depends on them. It is essential that all combs, brushes and instruments be thoroughly sterilized before they are again used.

This sterilization should also apply to extra hair, hair pins, hair nets, lining of the hats and anything which continually touches the scalp. The patient should also sterilize her combs, brushes, etc., at home, as it is impossible to obtain lasting results when the scalp is daily being reinfected with the germs on the patient's brush.

Oftentimes there is no infection, but the customer wishes the scalp kept in a healthy, luxurious condition. Nothing is better for this purpose than the finger manipulation in conjunction with the high frequency current indirect method and finishing with the *Menthol Tonic.*

The odor of the *Scurf Pomade*, *Scaling Paste* and *Dark Antiseptic Oil* is sometimes objected to, but the amount of benefit obtained far outweighs this consideration. Especially is this true where there is any infection.

SCALP MASSAGE—PLAIN

Part the hair from front to back. If tonic is used apply over the entire scalp. Then begin the massage with the shuttle movements. This is accomplished by placing the balls of the fingers of each hand on the scalp, the operator standing behind the patient, with the arms horizontally over the shoulders of the patient. Then by pushing with the fingers of one hand and pulling with the fingers of the other, a twisting shuttle movement is obtained. The object in this is to loosen the scalp and allow free circulation. Continue the movement until the entire crown is covered. Then place the fingers on top of the scalp and work from the neck to the crown, with the fingers of the right hand about one inch from the fingers of the left. Press firmly, so the fingers do not slip and pull the hair. Then cover the sides of the head, *omitting the temples.* After this use the rotary movement, by placing the thumbs at the base of the cranium, the fingers in a semi-circle about an inch above the thumb and move the scalp in a rotary manner with the fingers. By

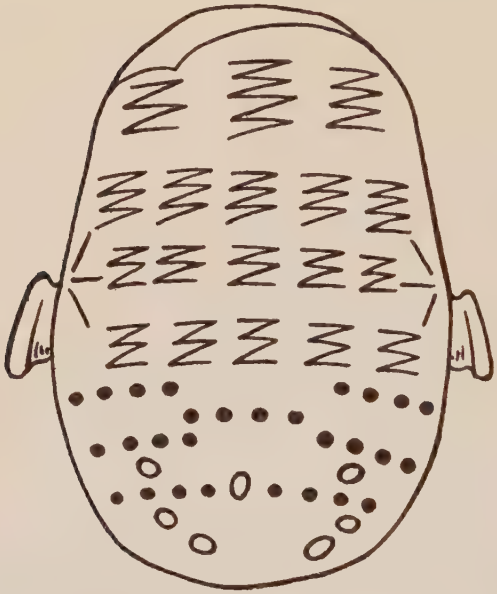

CHART XXX—Scalp Massage.

placing the thumbs just above where the fingers extend with the movement, a second movement is executed. It takes three placements of the fingers to cover the back of the head. Finally, use the facial rotary movement with pressure starting at the shoulders, following the sides of the cords in the neck to the base of the cranium, thence to the lobe of the ear.

Scalp Massage—Electric

This is accomplished with the same movements as in the plain scalp massage, except the patient holds the electrode for the high frequency machine. This gives a deeper stimulation as well as a greater than with the plain scalp massage. Always remember when giving a scalp massage with the high frequency, *never*

have all the fingers off the scalp at one time. This avoids all chance of a long spark which will sting the patient.

Sometimes after using the electric massage, the patient will have a slight headache. This may be overcome by running the number one applicator electrode from between the shoulder blades to the base of the cranium a few times.

The comb electrode should *only* be used on the scalp when there is a diseased condition, in which the spark will be of benefit.

Do not use the high frequency machine over the scalp when moist with the *Capillarine* or *Menthol Tonic.* Great care should be used with other tonics which are not familiar, as they are liable to burn the scalp when used with the high frequency.

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CHAPTER XXIV

SCALP AILMENTS AND DISEASES

The secret of keeping vigorous, healthy hair is regular cleansing of the hair and scalp with a good shampoo, frequent scalp massage with the proper tonics and proper ventilation. Normal hair should be cleansed every ten to fourteen days regularly, either with the dry shampoo or wet, or alternately with both.

Seborrhea, or in more common language, dandruff, is a disease of the oil glands, in which an abnormal secretion is thrown off. This condition may be distinctly oily and greasy, in which case it is known as Seborrhea Oleosa or oily dandruff. In other cases the excessive greasiness is less apparent, the flakes appearing to be dry and when the hair is brushed, a fine powder falls to the shoulders. This is known as Seborrhea Sicca or dry dandruff. In either case, the causes are practically the same. The oily secretion for some physiologic reason changes after being thrown off by the glands. Saboraud states that his belief is that Seborrhea is caused by a short bacillus which is always found in the upper part of the hair follicle. Unna, Brooke, Stelwagon and some other authorities give a systemic disorder such as dyspepsia, chlorosis, anemia, generally run-down condition of the body as one of the contributory causes together with a local infection of the oil glands. There is no doubt that the general condition of the health has much to do with the normal functioning of the oil glands.

As far as the operator is concerned, there is no treatment for systemic conditions. A physician should be consulted on these and personal hygiene considered. For the local infection, penetrating compounds are necessary which will retard if not actually destroy the infection.

The operator is mostly called upon to treat the milder cases of Seborrhea or Seborrhea Oleosa. The

so-called oily and dry hair, either with or without a heavy scurf. As the operator will come in contact with these more under these titles than under the medical terminology, they are herein outlined as dry and oily scalp.

DRY SCALP—DRY HAIR—NO DANDRUFF

Dry Scalp—Dry Hair—No Dandruff—Scalp Tight—This is caused by a lack of blood supply to the hair follicle. The patient for the first treatment should have *Light Antiseptic Oil massaged* into the scalp. Then give a plain massage. Allow this to remain on the head for 24 to 48 hours.

When the patient returns for the second treatment, apply *Light Antiseptic Oil*, massage well, using the *red* light from the *Thermolite* at the same time. Shampoo the head with a plain shampoo. After drying apply *Breune Tonic* lightly to the scalp and massage. After the tonic is dry, brush the hair for at least five minutes with a medium hard long bristled brush, using the upward and outward stroke. The last treatment should be twice a week for three weeks and then once a week until the hair is normal.

DRY SCALP—DRY DANDRUFF

Dry Scalp—Dry Dandruff—This, like the case above mentioned, is caused by lack of blood supply, but unlike the one before mentioned, is generally infected. The scalp is first steamed and the entire scalp warmed with the *Thermolite* for about ten minutes, after applying *Scaling Paste* to the entire scalp in a light layer. This is left on the scalp 24 hours, when it is removed with a shampoo and *Rejuvenator Tonic* is applied lightly, and massaged with the *electric massage*. Tell the patient to return in three days.

At the second treatment apply *Breune Tonic* lightly and massage well. Shampoo. Apply *Rejuvenator Tonic* and force in with the electric massage or with the *Thermolite*.

At the third treatment *Scurf Pomade* is used in the same manner as the *Scaling Paste* in the first treatment, followed by the *Rejuvenator Tonic.*

Fourth treatment, *Light Antiseptic Oil* is used in place of the *Scurf Pomade*, followed by the *Rejuvenator Tonic.*

Subsequent treatments alternate the second and fourth treatments.

NORMAL SCALP

Normal Scalp—The hair should be brushed thoroughly every day for a few minutes, preferably at night before retiring. This should be accomplished with a brush in which the bristles are straight, leaving a small distance between the tufts. A poor brush is worse than useless, as it has a tendency to drag on the hair. Shampoo every ten days or two weeks. Scalp massage every other week at least. *Breune Tonic* should be applied lightly before each massage. The *Menthol* tonic makes an excellent finish after the shampoo and leaves the scalp much refreshed.

OILY SCALP—OILY DANDRUFF

Oily Scalp—Oily Dandruff—This is caused by an over-stimulation of the Sebaceous glands. Sometimes this over-stimulation is caused from tonics and preparations used in the past, and at times is due to the climatic conditions. Where the climate is moist it has a tendency to make the hair more oily. If caused by climatic conditions there is no positive cure. It may be relieved for considerable lengths of time, but will recur. If caused by bacteria, it may be cured.

Scurf Pomade is applied to the scalp and massaged in well. It is then immediately removed with the shampoo. The *Menthol Tonic* is then applied with a light massage.

Scaling Paste is applied at the second treatment, the *thermolite* used without any lens and immediately removed. This is followed by the *Capillarine Tonic.*

OILY SCALP—NO DANDRUFF

Oily Scalp—No Dandruff—Apply *Breune* tonic to the scalp and massage in well. Give a wet shampoo. Follow with *Capillarine Tonic.* Give patron *Capillarine Tonic* with directions to apply every day. Have patron return twice a week for two weeks for shampoo and massage. The third week use *Capillarine Tonic* before *dry shampoo* and *Menthol Tonic* after the shampoo. Continue the use of the home treatment with the *Capillarine Tonic* daily. If the patron's scalp will stand it, give two dry shampoos a week for two weeks. One of these should be an egg shampoo. Then give one wet shampoo and two dry shampoos in the next two weeks. Then one wet shampoo and three dry shampoos in the next month. From then on gradually reduce to a shampoo every ten days. If during the treatment the hair appears too dry, a very small amount of *dark Antiseptic Oil* may be used. The hair should be brushed with a *good* brush after each shampoo until the hair appears to take on a lustre.

In cases where the hair appears oily after the first two weeks treatment, and there is considerable flaking of the scalp, the *special* for *oily* hair may be used, following the directions given on the package.

ALOPECIA

Alopecia is a general term applied to loss of hair, which varies from a gradual thinning of the hair to complete baldness.

ALOPECIA SENILIS

Alopecia Senilis—This, as the name implies, is caused by old age. It may merely be a thinning of the hair or complete loss of the hair on the crown, leaving a fringe. The complete loss of the hair on the crown is usually followed by the appearance of down. This latter condition is more prevalent among men than women. These cases show a large percentage of failures under any treatment, as generally the hair

and scalp was neglected for many years. The patient should have an application of *Scaling Paste*, this covered with a piece of waxed paper and left on the scalp 24 hours. This is then removed with the shampoo and a light application of the *Breune* tonic made. An *electric massage* is then given, followed by the *thermolite* without any lens. Finish this with a light application of *Menthol Tonic.*

This treatment without the *Scaling Paste* should be given every second or third day. It will naturally take considerable time to obtain any results, as the hair follicle has become impoverished.

Alopecia Areata—In this condition there appears to be no alteration in the skin, other than a milky whiteness in the affected area. The hair falls out in round or oval patches, sometimes over night. There is no scaliness nor irritation. This disease has in the past been the subject of considerable discussion, but is now conceded as arising from a blockage of the nerves. Thus by shocking and stimulating the nerves to their normal functions, removing the crust or layer covering the hair follicles, there is a possibility of returning the hair to normal.

Pityriasis Capitis or *Itching Scalp*—This disease is characterized by: 1. Dry, lusterless hair; 2. Small, grey scales scattered on the hair and scalp either in a fine powder or in small scales that resemble bran; 3. In oily cases the bran-like scales are coarse, yellowish, and adhere to the hair and scalp. There is no irritation of the scalp.

Scaling Paste should be applied first, leaving on over night, then removed with a shampoo. A scalp massage, indirect method with the high frequency, followed by an application of *dark Antiseptic Oil* with the *thermolite* without the lens for 10 to 15 minutes.

Second treatment: *Dark Antiseptic Oil;* massage, electric, followed by an application of *Breune Tonic.*

Third treatment: Same as second.

Fourth treatment: Same as the first except *Capillarine Tonic* is used in place of the *dark* Antiseptic Oil.

Further treatments should alternate between the second and fourth methods of treatment.

Canities—Canities, from the Latin meaning hoary or white, is the term used to denote absence of color in the hair, therefore grey or white hair. There are numerous theories advanced to explain this condition, as well as many alleged cures. Nevertheless, the exact cause of canities remains undetermined. However, there are two general classifications of canities, namely, Senile Canities and Premature Canities. Senile Canities is the term used for white or grey hair in the aged. Premature Canities is the term used for white or grey hair in young people. Practically the only correction for this condition is the application of hair colorings. If skilfully applied, the patron's appearance is benefited. In the hands of an unskilled operator weird caricatures of woman's crowning glory result.

FAVUS

Favus is a contagious, parasitic disease of the skin, caused by a fungus. This should not be handled in any manner by the cosmetician, as it is very easily transmitted. There are cases reported where death has resulted from *Favus*, and practically all cases are more or less scarred. It is characterized by small cup-shaped yellow crusts from the size of a pin-head to a pea, with the concave surface exposed. A hair is generally noted as protruding through the center. Other affected hair with no crusts, when extracted, show a gelatinous deposit at the base of the hair. There is also a peculiar mouse like odor which accompanies no other disease.

PEDICULIS CAPITIS

Pediculis Capitis or head lice is one condition which the operator will have no difficulty in diagnosing, unless the patient has irritated the scalp with the finger nails. If there are no deep abrasions of the scalp:

Tr. Larkspur—1 ounce.
Acetic Acid—3 drachms.
Alcohol—1 ounce.
Ether—1 ounce.
Mix.

applied once over the entire scalp will kill all the developed pediculi. This should then be washed off and either common vinegar or acetic acid, one ounce in a pint of water, applied every day for *five* successive days to kill the eggs. This is very drying to the hair and should be followed by a *light Antiseptic Oil* pack, which will return the hair to normal as well as help remove the dead eggs.

RINGWORM OR TINEA TRICHOPHYTINA

Ringworm or *Tinea Trichophytina* is a contagious disease which as a general rule is easily recognized. Any instruments coming in contact with this should be boiled in a *Lysol* solution for thirty minutes. Ringworm is characterized by a round patch or ring, the outer edge of which is irritated, and where the patch is of any size, the center within the rings show no irritation. Generally there are small vesicles filled with a clear fluid in the rings. At the extreme edge of the infection, as well as in the center, fine scales will be noted. Treatment consists of painting the affected parts with Tincture Iodine for two successive days. Apply *Scurf Pomade* the third day and allow to remain on two days. Then alternate every third day between the *Tr. Iodine* and the *Scurf Pomade.* Treatment generally requires from ten to fourteen days.

PSORIASIS

Psoriasis is a chronic skin inflammation accompanied by scales.

Psoriasis can hardly be mistaken for any other disease of the scalp. It is characterized by scattered, sharply defined, scaly plaques, generally starting at the hair line on the forehead or just behind the ear in the mastoid region. On inquiring of the patient it will be found that the same spots exist on the elbows

and knees. It is often confounded with excema and in some cases with *Seborrhea.* It may be distinguished from eczema by lifting one of the adhering scales, when a tiny blood spot is seen, instead of moisture, as in eczema, and dry non-adherent flakes as in Seborrhea. Treatment of *Psoriasis* should be left to the physician as systemic as well as local remedies are needed. Temporary relief may be had by the use of the *Scurf Pomade* and *dark Antiseptic Oil*, in connection with the *high frequency.*

PITYRIASIS CAPITIS OR ITCHING SCALP

Itching scalp is another division of Dermatitis Seborrhea. In itching scalp, there is usually a slight irritation of the scalp, up to a reddened condition accompanied by a branny scaliness. Under other conditions there is a scale formation together with a destruction of the upper layer of the skin and redness. The scales are greyish or dirty white in color and in the milder cases the hair is usually dry and brittle. Stelwagon (Diseases of the Skin, page 33), notes that the hair shaft at, or near the scalp, is usually encircled with a thin scale, and that the disease is of parastic origin, coupled with the general health. The treatment of Pityriasis Capitis is the same as for dry dandruff.

IMPETIGO CONTAGIOSA

is an acute contagious, inflammatory disease characterized generally by the formation of small sacs containing pus and serum and drying to thin yellowish crusts. At first the vesicles or sacts are small and when close together coalesce and form larger patches which often become filled with pus. A few days after the appearance of the disease they begin to dry to thin yellowish crusts, which have much the appearance of being pasted on. The disease, as a rule, unless otherwise infected, runs its course in a few weeks. Most cases become infected thru scratching with the finger nails, as there is considerable itching. In the treatment, sanitary conditions of treatment are a necessity, both to prevent infection of other patrons and

prevent re-infection of the patron. As this is generally within the physician's province, there is little need of discussion of the medication necessary. As a rule, however, the five per cent ammoniated mercury ointment is applied two or three times a day after the removal of the crusts with warm water. The main consideration of treatment appears to be the prevention of the disease spreading, and curative measures appear to be the application of mild antiseptic ointments.—(Dr. Sears.)

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CHAPTER XXV

COLORED LIGHTS

For the past few years considerable research work has been done by Finsen and others, on the effect of light rays. This at the present time has reached a high degree of efficiency. We now have physicians specializing in this intricate work. Research in this time has included: X-ray, violet rays, heat rays, light rays, actinic rays and combinations of these. The ordinary operator will work with the lights having from 75 to 150 candle-power. This gives sufficient penetration for her work, yet obviates any danger.

Lights may be used either for their heat effects or germicidal effects, certain light rays are excluded. Thus we have blue lens, or blue colored glass in the lamp to exclude the blue rays, leaving the remainder of the rays.

Red naturally excludes more of the chemical rays than the blue. So if we wish an antiseptic effect, the blue light is used. This also has a somewhat deeper penetration than the rays through the red globe or lens.

Naturally the rays from the uncolored globes or without lens, according to the type lights used, are the strongest and at the same time more irritating. For this reason, in cases of falling hair, when an irritant is desired, the bare light is used. In driving medication into the scalp, however, the blue lens is used. Care should be exercised that the light is not held too close especially when medication is applied, as absorption is too rapid.

The red lens is used upon dry, rough scalp surfaces for its tonic effects. This tonic effect may be had in greater degree upon the bare skin. Use is also made of the heat rays in driving creams into and promoting absorption of cream in dry conditions.

The blue lens is used when more stimulation is needed. Thus, in oily conditions of the face and

scalp the *blue* lens is used. Thus, in acne and oily skin the blue lens finds its use.

For many practical purposes the unshaded light is best. This may be used in germ troubles for its antiseptic properties. It may also be used to open the pores of the skin so medication may be absorbed.

The light rays in themselves have antiseptic properties, but exert these properties most upon the dry, bare skin. For this reason the light many times should be applied to the bare skin first. Then the medication in ointments or cold cream applied and forced in with heat from the light.

The operator must test for herself the distance the light should be from the patron. There are numerous Therapeutic lamps, among which are the Thermolite, *Marvelite* and *Dermal Lamp.* To obtain the necessary heat and concentration the light should have at *least* 75 candle-power. This, generally, when held about two feet away in the hand, and moving slowly, gives the necessary heat. For a soothing sensation the rays from the light may be passed in an upward swing from the back of the neck at the fifth vertebrae, to the ears, and letting the light rays fall into the ears for a moment.

The eyes at all times should be protected from the light by pads saturated with *witch hazel solution for the eyes*, as given under *miscellaneous formulae.* The rays of light should not rest on any one spot longer than ten minutes at a time.

THERAPEUTIC LIGHT

Red Lens—Soothing, non-irritating, tonic for dry skin.

Blue Lens—Mildly irritating, stimulating, tonic for more oily skin.

Bare Bulb—Irritating, stimulating, direct rays, for more heat.

CHAPTER XXVI

FIRST AID FOR THE OPERATOR

Apoplexy—In Apoplexy the patron's face is flushed, pupils of eyes are dilated and breathing appears heavy and difficult. Place the patron in a comfortable position, apply cold water compresses to the head and neck, and immediately send for a physician. Do not use any stimulants.

Bleeding—In mild cases, an application of Monsell's Salt directly to the cut will stop the bleeding. In profuse bleeding, if blood is bright red, place a tourniquet between the cut and the heart on the artery. If blood is dark, place tourniquet on vein below the cut. In nasal hemorrhage, a teaspoonful of baking soda in a cup of water, snuffed up the nose, will often stop the bleeding. Apply cold water compresses to nape of the neck.

Burns and Scalds—In mild burns, apply cloths saturated with a solution of salt or baking soda. Then apply borated vaseline to the parts to exclude air.

In deeper burns, a one per cent solution of Picric Acid should be applied. This may be followed by Borated Vaseline.

Electric Shock—Place victim in a cool spot. Loosen all clothing. Massage over the heart and call a physician.

Fainting—Loosen all clothing and place the victim where he may get plenty of fresh air, with the head slightly lower than the feet. Apply cold compresses to the forehead and over the heart.

Fits, Epileptic—In Epileptic Fits the muscles contract violently in different parts of the body. The convulsions are accompanied by dilation of the pupils of the eyes and foaming of the mouth. Place the victim in a recumbent position and hold there, being careful to exert a strong, even pressure at *all* times.

As soon as the victim relaxes entirely, pressure may be removed, when they will generally pass into a deep sleep, from which they should not be at once aroused.

Poisoning—Send for a physician at once. If the poison is known, tell the physician. In cases of hair dye poisoning, apply cream and warm towels. If cream is not at hand, condensed milk will act as a substitute.

CHAPTER XXVII

ELECTRO-THERAPY

Altho many have attempted to define electricity, definitions appear to differ. Scientists are able to lay down definite laws concerning its action, the reaction it has, but are unable to tell us what it is. One scientist tells us electricity is a mode of transmitting energy. Another tells us that electricity is molecular motion of the ether pervading the universe. Grover in his Handbook of Electro-Therapy says: "Electricity is one of the forces of nature developed or generated by chemism, magnetism or friction and probably a mode of ethereal vibration closely analagous to and convertible into heat and light." The prevailing theory of scientists appears to be that "electricity is a substance composed of moving electrons that are made manifest to us by its magnetic, thermal and chemical effects."

Thales, the Grecian philosopher who lived some 2500 years ago, was probably the discoverer of electricity. Thales discovered that by rubbing amber, which he gave the name electron, with the hand, various light substances were attracted. Considerable experimentation was conducted by Thales and after his name of electron, the smallest unit of electricity, is named. The term electron is used to denote the smallest unit of electrical force. An idea of the size of an electron may be had from the fact, as scientists have figured it, that one gram of radium emits electrons at the rate of several millions a second and requires thousands of years to be consumed.

Practically 2000 years elapsed after the properties of amber were discovered by Thales, before Gilbert, an Englishman, astounded Europe by his discoveries from which the science of electricity sprang. At this time the use of electricity was confined to static charges. In 1791 the discovery of the galvanic current

was given to the world. In 1831 Faradism was discovered and was followed by sensational claims. In 1888-90 D'Arsonval discovered a method of treatment by high frequency currents, which was the forerunner of the high frequency of today. This was followed by the Roentgen ray in 1895. Thus we see it has many forms and uses, but knowledge of the effects both of electricity and the different modes of application, as well as a definite knowledge of currents, etc., is required to obtain definite results.

PART I

Electricity

Electricity, for convenience, may be divided and classified according to movements.

1. *Electricity in Rotation or Magnetism.* This is made evident in a substance by its attracting iron filings, by its power to impart magnetic properties to iron or steel and by arranging itself when suspended so as to point to the north and south poles of the earth. The north pole of a magnet is positive.

2. *Electricity at Rest or Static Electricity* which is produced by friction. The charges may be isolated.

3. *Electricity in Vibration* is when the current oscillates or vibrates back and forth with great rapidity. When the rapidity is extreme, it is known as high frequency current.

4. *Electricity in Motion or Current Electricity*, which may be defined as the motion of a certain number of electrons thru a conductor at a certain time. A conductor of electricity is any substance which will act as a pathway or bridge for electricity to pass over, such as copper wire, saline solutions, etc.

Electricity is also classified as positive and negative. By comparing electricity to water we are able to obtain some definite illustrations. Water seeks its own level. This may be shown by attaching a rubber tube to a container of water on one end to an empty con-

tainer on the other. By placing the empty container lower than the container of water, water flows out thru the tube until the same level is reached in the formerly empty container or number two. If container number two is raised to a level with the surface of the water in the first container the flow stops. Electricity also attempts to seek its own level by neutralizing the negative charges with the positive. Practically all textbooks agree that the flow is from the positive to the negative poles. Thus we see that the container of water or number one represents the positive pole while the empty container or number two to which the water flows until its level is reached might be the negative. The positive is indicated by the plus sign (+) indicating a large amount or a condition of stress or high potential. The negative sign (—) indicates a lower electrical stress or potential. When the container of water or number one is raised or negative lowered, a condition of stress or pressure is exerted, causing the water to flow from one container to the other. This pressure or stress is known in electricity as *electro-motive force or electric pressure*, and the difference is known as electric potential. The rubber tubing carrying the water might be compared to the conductor of electricity. If the two containers were on fixed levels, it would take something to change these levels so as to cause a flow. This might be accomplished in the case of the water by a pump and in the case of electricity by a generator. Thus we see that a current is formed. A current flows from the generator thru the conductor to the place where it is utilized and back again to the generator. In the case of batteries, the flow is from one pole of the battery, thru the conductor, used, and then returned to the other pole of the battery.

Voltage might be termed the strain of trying to pass an electric charge from one place to another. A VOLT is the unit of electrical stress or pressure or the power exerted to force one ampere of current thru one OHM of resistance in one second of time.

An AMPERE is the unit of electrical current or the amount of electricity that will flow thru a conductor having a resistance of one ohm with one volt pressure. As one ampere of current is too large a dose to give ordinarily, the ampere is divided into 1000 parts, each of which is known as a MILLIAMPERE.

An OHM is the unit of electrical resistance. An illustration of these three, the volt, ampere and ohm, might be given by water being forced thru a pipe by a pump. The pump or force would be the volt, the pipe or resistance the ohm and the water or current the ampere.

OHM'S LAW is: The amount of current in amperes is equal to the electro-motive force in volts divided by the resistance in ohms.

$$\frac{\text{Volts}}{\text{Ohms}} \text{ equals Amperes}$$

An electric current is simply the passage of electrons over a suitable conductor. As the human body represents a resistance to the passage of electrical current, Ohm's Law may be illustrated on the body by connecting a single dry cell representing one and one-half volts thru a millampere meter which measures one one-thousandth of an ampere. If one and one-half volts of current were used and the resistance were 500 ohms, by dividing one and one-half by 500 we would obtain .003 or 3 millamperes. The human body represents a variable resistance to electricity. This resistance may vary from one to 10,000 ohms. By applying the electrodes to the body the needle of the millampere meter will be seen to fluctuate and point to the figure on the millamperes meter indicating the amount of millamperes being used. Now, by increasing the size of the electrode and moistening this with a salt solution, the size of the conductor is increased and the meter will indicate the passage of a larger amount of electricity on account of lessened resistance. Also, by placing the two electrodes far apart upon the body and reading the millampere meter and then placing

them fairly close together upon the skin a larger amount of current will be seen to flow as resistance is decreased. By inserting gauze, rubber or any non-conductor between the electrode and the body, the reading of the meter will drop, indicating that very little if any current is being used. Thus we see that a good conductor is a necessity. Always remember that amperage is used for measuring the dosage of electricity.

ELECTRICAL APPARATUS

For generating electricity, the simplest form is the wet cell known as the open circuit type. This consists of a zinc plate, a carbon plate, an electrolytic fluid, a container and wire for connections.

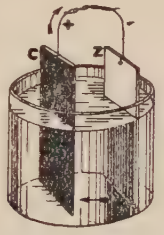

Diagram of Wet Cell

By immersing the two plates so they do not touch in the acid solution or electrolytic fluid, a chemical action is started. This chemical action is practically all upon the zinc plate and disturbs the equality or potential, thus producing an electrical disturbance, as the carbon pole is not acted upon. Now, if wires are attached to the carbon and zinc plates, we have a negative and positive attachment. As the current flows thru the electrolyte from the zinc plate to the carbon plate, the wire from the carbon will have a positive charge. But no current will flow thru until a return or complete circuit is made by attaching or connecting the wire from the negative pole or the zinc plate to the positive wire. We now have a complete circuit thru which current is flowing from the positive or carbon or positive pole thru the wires to the zinc or negative pole. The

same principle is involved whether wet cells or so-called dry cells are used. In the dry cells we still use the carbon electrode. Instead of a zinc plate, a zinc container is used. In place of the solution, blotting paper or similar material is saturated with the solution and placed in contact so as to act upon the zinc. The space between the blotting paper and the carbon electrode is filled with ground coke, manganese dioxide and moistened with a solution of ammonium chloride. The top of the cell is closed with pitch, tar or some material to prevent leakage and evaporation. In the dry cell as well as in the wet cell, the action of the chemical is upon the zinc plate, the current flows thru the solution of ammonium chloride to the carbon and out thru the conducting cord, causing the carbon to be the positive pole and the zinc the negative pole.

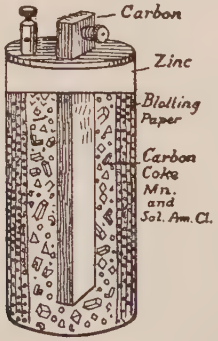

Diagram of Dry Cell

By combining or connecting a number of these cells together we have a battery of cells. For galvanic current and galvanic work these cells are connected in what is known as series. That is, the zinc or negative pole is connected to the carbon or positive pole of the next battery. This raises the voltage but not the amperage. As each battery when new represents approximately one and one-half volts in the dry cell type, by using 20 dry batteries we are able to get approximately

30 volts. Rarely is this much voltage used for cosmetic work. Usually from two to six cells are sufficient at one time. Now, if a tap is taken from the negative or zinc post of the first cell and run out to a selector switch and the positive of this battery is connected to the negative of the next cell, we will be connecting the cells in series to build up the voltage. Now, if a wire is run from each positive pole to a point for the selector switch, we will be able to use any one or more cells that we wish. These connections are illustrated in the sketch.

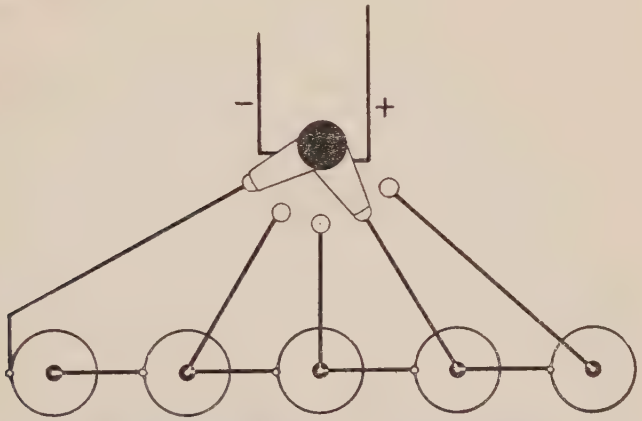

Diagram of Connections for Galvanic Battery

We now have the fundamentals of a battery for galvanic work. In the illustration only five cells are given. It is often necessary to use as high as twelve. These may be connected in series in the same manner as the five and increasing the number of points on the selector switch to correspond to the number of cells.

As the chemical action will not go on forever without a renewal of the chemicals, these batteries lose their power of generating electricity in proportion to the amount of reaction of the chemicals that are used up by the current. For this reason and also the constant expense of renewing the batteries or chemicals,

the ordinary lighting system current is resorted to. As a direct current is necessary, and the lighting system in most places is alternating current, it is necessary to change the current from alternating to direct current before using. This may be accomplished in one or two ways, chemical rectifier or motor generator. Of these two the motor generator is by far the better type, as there are less sharp variations from the motor generator than from the chemical rectifier. In electrotherapeutic work a rheostat is a necessity. By means of the rheostate the current may not only be turned on and off gradually, but the amount reaching the patient may be regulated. These rheostats are built into the so-called wall plates and are usually controlled by the dial in the center of the front panel. So we must have for exact work with current from the lighting system a motor generator. This is a motor and generator connected together so that the alternating current operates the motor which is so placed as to operate the generator which generates the direct current. This direct current is connected to the wall plate. The wall plate reduces the current so the current may be administered by means of the conducting cords and electrodes. This current is controlled by means of the rheostat.

Materials or substances in which or over which the electric current flows freely are known as conductors. Those which resist the passage of electricity are known as non-conductors or insulators.

By POLES are meant the points at which the electric current leaves or enters the cell or generator, wall plate, etc. The positive pole is marked with the positive sign or the letter P and is acid in reaction. The negative pole is marked with the letter N or negative sign. CONDUCTING CORDS are the cords which are attached to the wall plate to carry the current to the electrodes, which are applied to the body. These conducting cords are of copper or silver wire, covered with insulating material. Electrodes are applicators,

needles, etc., to apply the electricity to the body when properly connected.

SUMMARY

Electricity is a condition developed or generated or developed by chemism, magnetism or friction.

Batteries or galvanic units may be made by combining single cells. Single cells are composed of a solution, a zinc or metal plate, a carbon plate and a container. Chemical action takes place upon one plate and not upon the other and produces electro-motive force which causes a current to flow from the zinc to the carbon plate INSIDE the cell, and, when properly connected, from the carbon to the zinc plate OUTSIDE the cell. The carbon or positive pole of the battery is acid inner-action. The negative or zinc pole is alkaline in reaction.

For the passage of a galvanic current a circuit is necessary. If the circuit is broken in any manner, as defective cords, the passage of current stops.

A VOLT is the unit of electrical pressure.

An AMPERE is the unit of electrical current.

An OHM is the unit of electrical resistance.

Ohm's Law is volts divided by ohms equals amperes.

A CONDUCTOR is any suitable material which will pass an electric charge.

An INSULATOR is any material or substance which will not pass an electric charge freely.

QUESTIONS

1. What is electricity?
2. How may it be produced?
3. What is a battery? Describe one.
4. What is meant by positive? What chemical reaction has a positive current?
5. What is meant by negative? What chemical reaction has a negative current?
6. What is meant by an electrical current?

7. What is a volt?
8. What is an ampere?
9. What is an ohm?
10. Give Ohm's law.
11. What is meant by connecting batteries in series?
12. Name two conductors.
13. Name two insulators.
14. What are conducting cords?
15. What is meant by electrodes?

PART TWO

Electricity appears in many forms but may be used by the operator in cosmetic therapy in three forms:

1. Galvanism.
2. Faradism.
3. High Frequency, generally miscalled violet ray.

GALVANISM

Galvanism is the term applied to the application of direct current of voltaic electricity. This, as previously explained, may be supplied by dry cells connected in series or from a wall plate with direct lighting current and with a wall plate and motor generator if the lighting system is alternating. Galvanism is dependent upon electrolysis and ionization for its action. By electrolysis is meant the breaking up or decomposition of a chemical compound in solution and resolving it into its constituent parts by passing an electric current thru it. The constituent elements are known as IONS. In electrolysis of liquids this decomposition takes place and is followed by a collection of ions at each pole. Water upon electrolytic action separates into hydrogen and oxygen. The hydrogen collects at the negative pole and the oxygen at the positive. During electrolysis not all of the ions reach the respective electrodes. Some of them remain in the electrolyte. The electrolyte might be defined as the so-

lution which is acted upon and is a conductor of electricity. The importance of electricity for therapeutic treatment depends upon the fact that the tissues form an electrolyte. While there are some changes taking place thruout the area traversed by the current, the most marked changes appear where the electrodes come in contact with the body. The body consists in large part of moisture, this moisture consisting of the blood, lymph and secretions. This moisture is necessary for the passage of current, and acts as the electrolytic fluid for the passage of electrical charges. Therefore, when the galvanic current acts upon the body itself, causing tissue changes and in some cases as when used for the removal of hair, causes a decompostion. If the electrodes are of metal or metallic compounds, metallic ions will be set free at the poles by the current and forced or carried into the tissues. This process is known as ionization and under certain conditions as PHORESIS. When metallic ionization is not desired, platinum or block tin is used as electrode, resulting in the dissociation of the tissues themselves. For this reason platinum or block tin is much used in electrolysis needles for the removal of superfluous hair. The chemical effect of the negative electrode is a solvent action upon albuminous matter, a liberation of alkali, and if continued the formation of a *soft* scar. The action of the positive pole is the liberation of acid which causes a coagulation and the formation of a *hard* scar. The terms Electrolysis and Ionization should not be confused. In electrolysis a decomposition of the tissues takes place with the ions *from* the tissues attracted toward the poles. In ionization, while more or less electrolysis takes place, the object is to drive ions from the electrodes *into* the tissues. PHORESIS in medicine is understood to be the process of driving medicinal substances *into* the tissues by means of ionization. If the diffusion into the tissues is by means of the cathode or positive pole, the process is known as CATAPHORESIS. If the process is by

means of the negative pole, it is known as ANAPHORESIS.

A low voltage is used in galvanic work usually from 10 to 60 volts. Millamperage is usually from ½ to 60. The application of galvanism to the body may be used to obtain varied effects. Secretion of glands may be increased or decreased thru the action upon the nerves regulating the blood supply. In small doses it has a soothing and toning effect. It stimulates the functional activity of the part thru which it passes. It may be used for destroying abnormal growths, superfluous hair. For the application of the galvanic current it is necessary to know the action of and the application of the two poles. These may be compared thus:

POSITIVE	NEGATIVE
Contracts the tissues.	Dissolves the tissues.
Hardens the tissues.	Softens the tissues.
Acid in reaction.	Alkali in reaction.
Has a sedative effect.	Stimulates tissues.
Decomposes metals.	Used for removal of superfluous hair.
Does not give off visible gas bubbles.	Does not decompose but few metals.
Gives a blanched appearance to the skin.	Collects visible hydrogen gas when immersed in saline solution.
	Reddens the skin.

For the application of the galvanic current the skin should be free from oils and grease. For this reason it is well to use either soap and water or one of the various lotions for removing creams or oils from the skin. This should be followed, for Phoresis, by swabbing the skin with alcohol. As different solutions are applied with different poles to obtain Phoresis, a table of the more common ones are given with the pole to be applied by

POSITIVE	NEGATIVE
Sulphur.	Sodium chloride.
Mercuric chloride.	Sodium salicylate.
Icthyol.	Calcium salts.
Menthol.	Potassium salts of iodine,
Thymol.	bromine and chlorine.
Adrenalin.	

These should be applied by means of a carbon electrode and cotton moistened with the solution to be diffused. In place of the carbon electrode a special electrode for Phoresis is sometimes used. The patron holds the large electrode which is not used for the application of the medication. In treating the patron with the galvanic current, it is as necessary to watch the patron as the millampere meter. Undue current is unnecessary.

REMOVAL OF SUPERFLUOUS HAIR BY ELECTROLYSIS

Electrolysis as applied to the removal of superfluous hair is exceedingly simple. The necessities are:

Wall plate or battery of cells.
Millampere meter.
Electrolysis needles, preferably bulbous.
Conducting cords and handles.
Epilator forceps for removing hair.
Needle holder.
Magnifying glass.
Keen eyesight.
Steady hand.
Ability to hit the hair follicle.

Electrolysis of superfluous hair consists of electrolysis of the hair papilla and hair follicle, together with the removal of the hair. The tips of the cords should first be tested to be sure which is the negative pole. Immerse the tips of the cords in a salt solution. This salt solution may be made from common salt three teaspoonsful and distilled water one pint. Then current should be turned on and in a moment bubbles will be

seen forming around one tip. This is the negative tip. The needle holder should be attached to this tip. The electrode which the patron is to grasp should be attached to the other or positive tip. Thoroughly cleanse the area to be operated upon with soap and water and sterilize it. The needle should also be thoroughly sterilized. One of the methods previously used was to dip the needle in liquified phenol until the phenol adhered to the needle and then rinse in grain alcohol. This method was excellent but is now impossible or at least improbable, as the operator is unable to obtain pure grain alcohol. Therefore, we must use other methods. Boiling the needle may be used. Another is by immersing in pure ether. There is also a sterilizing solution upon the market which may be used that is recommended by various state boards of health. Whichever method is used, the needle should be thoroughly sterilized. After attending to the sterilization of the needle and the area to be operated upon, we are ready to start. Place the patron so a good light may fall upon the area. Give the patron the well-moistened positive electrode to hold. Attach the needle holder to the negative tip, turn on one millampere of current and insert the needle. Gas bubbles will form immediately and be seen escaping from the hair follicle. In approximately one minute, test the hair by pulling gently with the epilator tweezers. If it fails to come out leave the needle in for another half-minute and try again. If the hair fails to come out easily, remove the needle, pull the hair out with the tweezers and insert the needle into the hair follicle and use the current for another half-minute, to destroy the papillae. As the hair follicle varies in depth, so the needle will penetrate deeper for some hairs than others. If the hair is especially strong, it may require up to three millamperes of current to destroy it and as long an insertion as three minutes. Do not remove too many hairs in any one area, but rather scatter the treatment out. In some cases a slight hemorrhage will follow the insertion of the needle. This may be on account

of the needle being inserted too deeply or on account of a systemic trouble. The moistened positive electrode should be applied to the area for a few minutes before starting the use of the needle again. In some cases a small blue point will follow the use of the needle. This may be lessened by the use of negative current followed by positive electricity. Be sure that the blue point is not caused by having the needle holder attached to the positive, however.

After the use of the electric needle, a non-irritating antiseptic cream should be used upon the skin. This should be removed and followed by the use of the positive electrode over the surface treated. A slight amount of the antiseptic cream should then again be used. The patron should refrain from using soap and water upon the treated area, but rather use a good cleansing cream after the type indicated under Theory of Cosmetics. This should be followed by the use of a GOOD antiseptic cream which will not irritate, until the inflammation has subsided. Do not use the needle again while any redness or inflammation is present.

QUESTIONS

1. What is meant by galvanism?
2. What is meant by electrolysis?
3. What is meant by ionization?
4. What is Phoresis?
5. What is Cataphoresis?
6. What is Anaphoresis?
7. What is the difference between electrolysis and ionization?
8. What is the average range of voltage and amperage used for galvanic work?
9. Give the seven actions that the positive pole has.
10. Give the eight actions that the negative pole has.
11. What treatment should the skin always have before electrolysis?

12. What is the necessary equipment for removal of superfluous hair?

13. Which pole is used for the needle?

14. How do you prove which pole to use?

15. How should needles be sterilized?

16. Outline the process of removal of superfluous hair by electrolysis.

17. Give the after-treatment.

PART THREE

Faradism

The Faradic or induced current has no chemical action and is used only for stimulation. In medicine today the only place it is employed is in the restoration of enfeebled muscles. Faradic current should be from the direct current or from the motor generator. The current is induced after the principle or a step down transformer. There are two windings, the primary and secondary. Current passes from the primary to the secondary by means of induction, and by means of a rheatome or interrupter the flow of current is broken up. As the secondary has a less number of turns of wire than the primary, the voltage is reduced and the amperage correspondingly raised. The Faradic current uses a lower voltage and a higher amperage than the Galvanic current.

A current of this nature is especially adapted to producing muscular contraction. The Faradic current should not be used in cases where there is any blood congestion and especially not in Acne Rosacea. Best results appear to be obtained by the application of the Faradic current to motor points. Thus, by the action of the Faradic current upon the nerves, a stimulative effect is obtained upon the muscles. The Faradic current is usually combined with massage, the operator attaching one pole to her arm or wrist and having the patron hold the other electrode.

HIGH FREQUENCY
(So-called Violet Ray)

A high frequency current is one characterized by the high number of cycles completed in one second of time. It is in reality a combined alternating and oscillating current. The ordinary current which reverses itself 120 times per second is known as a 60-cycle current. Or, in other words, 60 positive and 60 negative charges pass in one second of time. An oscillating current is different from the alternating in the wave-length of the alternations. This difference is brought about thru the use of condensers. These condensers bring about long and short alternations due to the change in force as the current is discharged from the condensers. As the ordinary lighting circuit is 60-cycle, some idea of the frequency may be had when we understand that an oscillating current must complete 10,000 or more cycles per second before it is a true high frequency. The high frequency current possesses qualities unknown to other currents. It is unipolar or requires only one pole for application. Many substances which are insulators of other currents may be used as conductors for this current. Voltages and currents which under other modes of applying could not be tolerated are used very satisfactorily by this method. Voltages as high as 100,000 and of one ampere strength have been passed thru a person without injury to the person. This is caused by the oscillations being so rapid that our nerves and muscles are unable to contract or react to them. While with the cheaper grades of apparatus there may be considerable disagreeable sparking and some disagreeable shock, with the better grades of apparatus a milder current is delivered. With a very high-grade machine the current is so smooth and the oscillations so rapid that it is scarcely felt. And yet for fulguration this current may be strengthened until it may scarcely be tolerated.

PHYSIOLOGY OF HIGH FREQUENCY CURRENTS

The first effect upon the skin of the application of the high frequency current is one of constriction of the small blood vessels. This is followed by a dilation of the capillaries and consequent redness. At this point there is a small amount of local anesthesia produced. Whenever there is a break in the electric current ozone is produced. This ozone is produced usually between the applicator and the skin by the sparks by the ionization of the air which liberates oxygen of the construction known as ozone. This ozone is the peculiar, rather pleasant odor that is apparent after the use of the high frequency and has a germicidal effect. The high frequency promotes activity of tissue changes and metabolism. The activity of the glands is increased and especially the sweat glands. This increased activity is apparent if the skin is dusted with talcum powder and the applicator applied to the skin. In a few moments a hard coating consisting of nitrous acid, ozone, perspiration and talcum powder will be found upon the applicator. This property of forming nitrous acid and ozone is taken advantage of by the medical profession in treating indolent ulcers. The high frequency has both a deep and superficial effect. The deep effects produce no muscular contraction as do the Faradic currents and very little, if any, sensation if the better grades of apparatus are used with a low current. High frequency currents penetrate more deeply than either galvanic or faradic currents. The high frequency current has more effect upon the lymphatic and other deeper glands than other currents. As the high frequency current is unipolar, only one pole is used for the administration of current. The conducting cord must be well insulated. The vacuum electrode may be of different types to suit the convenience of application. Usually the manufacturer of high frequency apparatus includes a flat electrode, a comb or rake electrode, condensation electrode for in-

direct use of the current and from one to two small sizes of electrodes smaller than the large flat electrode. Fulguration electrodes usually must be purchased separately. It is well to remember that substances that are insulators for the galvanic and faradic currents are not insulators for the high frequency. Indeed, in many cases the insulators of other currents are used to conduct the high frequency. In some cases the insertion of one of the insulators for the other current between the applicator of the high frequency and the skin heighten the effect of this current. This may be illustrated by placing a piece of dry gauze between the applicator and the skin. It will be noticed that there is considerable more sensation that if the applicator is applied directly to the skin. It is true that there is not as much penetration by using the gauze, however. This is taken advantage of when we desire a greater surface stimulation. Many of the substances such as wool, cotton, glass, silk, which are insulators for the galvanic current, do not insulate the high frequency. This is also true of oils and creams. With the galvanic current no coating of oils or creams may be upon the skin or we do not obtain a passage of current. With the high frequency current, oils and creams are sometimes used to heighten the effects. Care should be exercized in seating the patron so she will not come in contact with a ground connection such as a radiator, water pipe or other metallic ground, as a spark will jump from the patron to the grounded metal during treatment. In placing the vacuum electrode upon the patron, the application should be made quickly to lessen the amount of sparking. This sparking is often disagreeable to a nervous patron. It is well to remember that the irritation sometimes caused by the violet ray is caused by the sparks and generally in the cheaper grades of apparatus.

There are two methods of application of the high frequency current, the direct and the indirect. The direct method is the use of the applicator connected to the machine and applied directly to the part to be

treated. It is claimed that the direct method has a deeper effect than the indirect. As a certain amount of heat is generated, as well as the electrical effect produced, a greater amount of blood is brought to the part. As the blood carries nutriment and the phagocytes which fight disease, the benefits are apparent. To this is added the germ-destroying power of the electrical current as well as the effect of the ozone produced. Thus the direct method is used in inflammatory conditions where it may be tolerated. This promotes the building up of new tissue. It is well to remember that the more the current is broken up into sparks the greater is the surface action with a corresponding decrease in action upon the deeper tissues. With the violet ray equipment will be found a comb or rake electrode for applying the current to the scalp. In applying this electrode care must be taken that the electrode reaches the scalp, for if the electrode is held away from the scalp by the hair, disagreeable sparks will be produced. The use of the direct method is indicated where the skin is dry and where stimulation is necessary.

The indirect method is used by having the patron hold the condensation electrode and drawing the current from the patron to the operator. This method is used for massage work. The indirect method is the subject of much controversy at present and no absolute decisions may be made. However, there is no question that, using the same amount of current and the applicator applied to the skin, the sparking action is less and the current weaker. The indirect method also appears to be more soothing in effect than the direct method, especially if combined with massage. The massage using the indirect method over the eyes is very pleasant and is beneficial especially in cases of eye strain or tired eyes.

Care must be exercised in the use of the direct method to keep the applicator moving, especially if the stronger current is being used. By keeping the applicator in one place, a more or less severe burn or blister

may be made. It is well to remember also that inflammable substances such as alcohol, ether, kerosene, or hair tonics containing a large proportion of them, should never be used with the violet ray, as the sparks are liable to ignite them.

DESSICATION OR FULGURATION

Surgical uses of high frequency currents are made use of when we desire to destroy tissue. By this method nevi or warts are destroyed, acne pustules may be opened. By the use of the fulguration electrodes we are able to obtain effective destruction of abnormal growths bloodlessly. As no instrument enters the growth, chances of infection are less and as practically a cautery is inflicted, sterilized wounds are the result. The chances of unsightly scars are negligible if care is exercised. Dessication or fulguration is a dehydrating process which leaves the cells a dry mass. The fulguration electrode is a glass electrode having a platinum wire for the application of the sparks. There is another type of electrode in which the wire is free or simply a bent platinum wire. This latter type, while as effective as the wire and glass electrode, has the disadvantage of requiring more care in the handling. Either of these electrodes may be inserted in the regular handle of the conducting cord for the violet ray. The depth of the treatment is controlled not only by the amount of current used but also by the distance of the fulguration point from the area to be treated or the length of the spark, length of the time applied and the density of the tissue. As different tissues require different strength currents, and the area of the part to be treated changes the amount and strength of current as well as the length of spark used, these may only be found by experience.

After the application of the fulguration point a dry crust forms practically at once. This separates and peels off. The direct method is usually employed except when the work is very close as around the eyes or when a milder form of dessication is desired. In

these cases the indirect method is resorted to. The indirect method is used by having the patron hold the condensation electrode and drawing the spark TO the fulguration point. For warts, moles, etc., the direct method is best unless close to the eyes. The surface should be thoroughly treated with a current strong enough to sear the part.

SUMMARY OF TREATMENTS

Acne—Cleanse the surface thoroughly and use the applicator with a moderatly high current over the entire area. Then open the pustules and extract the blackheads. Apply a penetrating antiseptic cream to the area and use the application a second time. If the patron is not too nervous, gently spark the opened acne pustule.

Alopecia—Regular scalp treatments may be used, but be sure that no inflammable materials are upon the hair when the high frequency is used. A strong enough current should be used as a sharp sparking is felt. This sparking may be used over the entire area for from 10 to 15 minutes.

Massage—The indirect method is used. Creams or oils may be applied before the massage is started.

Nevi, Warts, etc.—The fulguration point is used as given under fulguration. The use of antiseptic creams after the separation of the crust has started aids in hastening the removal of the crusts as well as aids in preventing infection.

Superfluous Hair.—Use the negative galvanic current for electrolysis. Insert the sterilized needle into each hair follicle for one minute, using from one to three millamperes of current. Try epilation of hair. If hair is not loose, use the current for another half-minute. If still solid, remove the hair needle, pull out the hair with the tweezers and insert the needle in the hair folicle for 30 seconds. Do not remove too many hairs in any small area. After treatment by the electric needle, use the positive galvanic current and fol-

low with an antiseptic cream. For after treatment use an antiseptic cream and cleansing cream, no soap and water.

ELECTRICAL DON'TS

Do not use electrolysis needle until after you have sterilized it.

Do not insert the electric needle into the hair follicle until after you have tested for negative current.

Do not remove too many hairs in a small area.

Do not use oils or creams upon the skin and expect to use the galvanic current.

Do not leave any treated hairs in the follicles.

Do not connect an alternating current directly to a wall plate. The alternating current is attached to the motor generator.

Do not use a greater current than 110 volt for either the violet ray or motor generator.

Do not use violet ray more than half an hour at a time without allowing time for it to cool off.

Do not use a cracked vacuum applicator with the violet ray. Sometimes a burn is obtained. If there is no vacuum the current will not pass thru.

Do not come in contact with any part of the violet ray except the handle while giving the treatment.

Do not place the patron so she may come in contact with any grounded metal.

Do not put the vacuum electrodes away without first having cleaned them and applied alcohol.

QUESTIONS

1. What is Faradism used for?
2. How does this current compare with the galvanic current in strength?
3. What is the reaction of Faradism on the muscles?
4. With what is the faradic current usually combined?
5. What is the high frequency current?

6. How many poles are necessary for the application of high frequency?

7. What is the difference between the galvanic current and the high frequency?

8. What effect has the high frequency upon the skin?

9. What produces ozone?

10. Are the same substances used for insulation of high frequency and galvanic currents? State the difference.

11. What are the two methods of applying the high frequency? What is the difference in reaction obtained?

12. What care must be exercised in applying the comb electrode? Why?

13. What is fulguration?

14. For what is it used?

15. What controls the degree of dessication produced?

16. What is the action of the fulguration point?

17. When is the indirect method used in fulguration?

18. Give the treatment for acne.

19. Give the treatment for alopecia.

20. How is the indirect method used with the violet ray for massage?

21. How would you treat warts with the violet ray?

22. Outline the treatment for superfluous hair.

QUESTIONS AND ANSWERS FOR THE OPERATOR

In this will be answered a few of the perplexing operator's questions.

Q. 1—What is the difference between commercial Hennas and liquid dyes such as Rapidol, Inecto, etc.?

A.—Hennas are compounds which form a coating around the hair, this coating containing the color. Liquid dyes penetrate the hair shaft, depositing the color within the hair.

Q. 2—Which is the most harmful to the hair?

A.—The hennas form a solid coating around the hair. The liquid dyes do not. Therefore, there is greater danger of hair breakage using the hennas.

Q. 3—What is the difference between a hair restorer and a hair dye?

A.—Both color the hair, but the restorer generally is a lead or sulphur compound which darkens upon exposure to light and air, whereas the dye acts along the same lines as when dyeing clothes.

Q. 4—Will the hair after dyeing be exactly the same as shown on the color card?

A.—If the hair is of exactly the same texture, originally of the same shade and the same resistance—yes. This, however, is not the rule. Therefore, the hair generally will be a slightly different color.

Q. 6—Should hair dyes, hennas, etc., be used on heads where there is an eruption;

A.—Absolutely not.

Q. 7—Is it safe to use a liquid dye over henna or restorer?

A.—If the hair is first given from 4 to 8 treatments of Light Antiseptic Oil—yes.

Q. 8—Can auburn or red hair be bleached to blonde?
A.—No, it will come out a dirty color.

Q. 9—How much should a head of hair be bleached at one time?
A.—Not over two shades. This should be washed out and followed by the Light Antiseptic Oil to replace the oils taken out from the hair.

Q. 10—Is it advisable to use white henna?
A.—Yes, if they contain no magnesium carbonate or acids.
A.—No, it does not injure the hair *if* two hot oil packs are given for every application of henna pack. Henna itself has a drying effect upon the hair. This effect is counteracted by the Light Antiseptic oil, when applied as a hot oil pack. If henna is applied over any great area of the body to obtain a tan effect, serious trouble may ensue.
A.—No, it does not injure the *hair*, but if applied over the entire body would have a poisonous effect.

Q. 12—Does hair dyeing *kill* the hair?
A.—No, because the part of the hair with which the dye comes in contact is already dead.

Q. 13—What is meant when the hair is commonly spoken of as dead?
A.—The hair has lost its tensile strength, the natural oil is removed, and the hair is much like a hard piece of leather.

Q. 14—What is the natural oil of the hair?
A.—The natural oil of the hair is partly broken down cellular matter thrown off by the glands, volatile oil, solid oils and water.

Q. 15—Is brilliantine, marcelling, jelly, etc., of any value in marcelling?
A.—Yes, they replace the volatile oils driven off by the hot irons and tend to keep the hair more pliable with less breakage, providing the brilliantines are manufactured with that end in view.

Q. 18—Is peeling of the scalp of any benefit?

Q. 16—Why does marcelling cause oily hair on some heads?

A.—The natural oils are driven from the *inside* of the hair to the outside by the heat of the irons, thus oily hair is caused for a time. With continued marcelling, however, if this is not replaced with a penetrating oil, the hair will become excessively dry.

Q. 17—Are hair tonics of any benefit?

A.—If properly compounded, they are. They do not feed the hair as is the popular conception, but cause a faster flow of the body fluids to the parts to which the tonics are applied. If the tonics are compounded for a special purpose, taking into consideration the causes, the tissue involved and the special needs, results will be obtained in a great majority of cases. This necessarily means that no tonic, however carefully compounded, will give results in the same length of time on different patrons, as the patrons naturally differ both in bodily health and physiological reaction. No hair tonics which are used for everything are of any value to the operator.

A.—In the majority of cases—no. It is unnecessary in a great many cases and in others positively unhealthy. The only benefit derived is possibly some antiseptic action from the strong chemicals used. This may be accomplished by much saner methods, with the exception of a few cases.

Q. 19—Is it possible to grow hair?

A.—No, the only possibility is to furnish favorable conditions for hair growth, stimulation and aseptic conditions. Nature is the only one who can *grow* hair.

SKIN AND TISSUE

Q. 1—Do tissue creams, skin creams, etc., really nourish the tissues and skin?

A.—Directly no, indirectly yes. The fats and oils of the cream, if correctly manufactured from the correct materials, act as a lubricant to the skin. By mixing with the excretions and diluting them, the cream has a cleansing action when removed. They should be penetrating to carry any medication they contain. This medication may be stimulating, sedative, alterative, etc., according to the aim of the cream. When applied correctly, they obtain these results. Massage is generally used in the application because it requires no special equipment besides the operator's knowledge. Thus in actual practice the cream, etc., together with the means of application do nourish the tissue, altho technically they do not.

Q. 2—Is it possible to remove superfluous hair permanently?

A.—Yes, by certain processes, conditions unfavorable to the growth of hair are obtained. The hair gradually loses its vitality and as each succeeding hair is formed, the hair becomes smaller until all growth finally ceases. This requires considerable effort and time, but is finally more successful than electrolysis, as only part of the hair papillas are destroyed by electrolysis and the survivors may obtain more nourishment thru the stimulation by the electric current and the resultant irritation.

Q. 3—Is it possible to change facial expression by massage?

A.—Yes, if the correct muscles are worked upon, omitting the over-developed ones which cause the tendency you are trying to master. Much patience is needed, as well as aid from the patrons.

Q. 4—Is perfumed vaseline as good for the hair and scalp as Brilliantine made from other sources and scientifically compounded?

A.—No, for the reason that vaseline is incapable of absorption. Therefore, vaseline clogs the pores of the scalp, forms the coating around the hair commonly called gumming the hair, thereby shutting off the air and sunlight.

Q. 5—Why are vegetable oils considered better than mineral oils for the hair?

A.—Vegetable oils are more penetrating than mineral oils for one point. Also, the hair substance is insoluble in vegetable acids.

Q. 6—What is the greatest necessity in giving scalp treatments?

A.—A recognition of the disease causing the trouble. The greater part of the troubles with which the operator deals are caused by bacteria. Therefore, treatment must follow the cause to obtain results.

Q. 7—What is the action of temperature on the skin?

A.—Warmth relaxes the skin; cold contracts it. Exposure toughens it. Protection makes it sensitive.

Q. 8—What causes Dandruff?

A.—The causes of Dandruff are numerous. An overproduction of oil may flow upon the scalp, dry and form into thin scales. The scalp may be excessively thickened and scale. The scalp may be infected causing a sluffing of the epithelial cells. It may be caused by systemic troubles such as digestive disturbances and at times kidney troubles. The first three causes may be remedied by the operator, as a general rule.

NOTES

NOTES

CHAPTER XXVIII

GLOSSARY OF MEDICAL TERMS

Practically all the medical terms used in cosmetic work come to us from the Latin and Greek—the large majority from the Latin. Thus, if one knows their meaning, it is far easier to memorize them.

Using Glossary

In using this glossary the following suggestions should prove of great value.

In the following G indicates Greek, and L Latin.

In the pronunciation, the following key for the sounding of the vowels is used:

a as in cat	ā as in Kate
e as in net	ē as in near
i as in sin	ī as in bind
o as in not	ō as in dote
u as in cub	ū as in tube

A

ACNE (ak′-nē) G. a point. Derives name from size and shape of elevations in this inflammatory disease of the sebaceous glands.

ADIPOSIS (ad-i-pō′-sis) L. **adeps,** fat; **plus osis,** disease. Thus obesity, excessive accumulation of fat.

ADNATA (ad-nā′-tah) L. **ad.** to; plus, **natus,** be born. Thus attached or grown to from birth. In beauty culture same as tunica adnata, one of the coats of the eyeball.

ALA (ā′-lah) L. a wing. Plural is **alae.** Thus any wing-like process.

ALKALI (al′-ka-lī) Arabic, meaning ashes of the plant saltwort. Thus the soluble part of the ashes of certain plants, as soda.

ALAE NASI (ā′-lē nā-si) L. **ala** (wing-like) plus, L. **nasus,** nose. Refers to wing-like flaps on outer side of each nostril.

ALOPECIA (al-ō-pē′-si-ah) G. fox. Thus a disease like the mange of foxes in which the hair falls off. Thus baldness; loss of hair.

ANATOMY (anat′-ō-mē) G. cutting up; dissection. Thus cutting up of parts of a body in order to discover their position, structure and use.

ANGULAR (ang′-ū-lahr) L. **angulus,** an angle. Thus having an angle or angles.

ANGULI (ang′-ū-lī, or li) L. plural of angulus.

ANHIDROSIS (an-hi-drō′-sis). Same as anidrosis.

ANIDROSIS (an-i-drō′-sis) G. **an**, without; plus **hidrosis**, sweat. Thus sweatless—deficiency or lacking in perspiration.

ANTERIOR (an′-tē-ri-or) L. fore, more to the front. This is the opposite of posterior.

ANTI (anti) G. opposite to; against; opposed to.

ANTISEPTIC (an-ti-sep′-tik) G. **anti**, plus, **septic**, decay or putrefaction. Thus any substance which destroys or halts growth of disease germs.

AORTA (ā-or′-tah) G. Artery. Thus the great artery issuing from the left ventricle of the heart.

APONEUROSIS (ap-ō-nū-rō′-sis) G. word "from"; plus G. "nerve or tendon." To become a tendon. Flat, wide bands of fibrous tissues which serve to connect one muscle with another. Thus the galea aponeurosis connects the two parts of the occipito frontalis muscle.

APOPLEXY (ap′-ō-plek-si) G. **"off"**; plus **"strike."** Thus disabled by a stroke, generally caused by rupture of blood vessel in the brain.

AREATA (a′-re-ā-ta) L. **areatus**, confined in an area. Thus alopecia areata is baldness in spots .

ARRECTOR PILI (a-rek′-tor Pī-lī, or li) L. an erector or raiser plus, **pili**, hairs. Thus hair-raisers. The minute involuntary muscles of the skin whose contraction causes goose-flesh. Also called arrectores pilorum or arrector and pilomotor muscles.

ARTICULATE (ahr-tik′-ū-lāt) L. articulatus, jointed; divided into joints. Articulate is also used in the sense: "to connect with."

ASEPSIS (ah-sep′-sis) G. **a**, without (same as English word "un") plus, **sepsis**, decay or putrefaction. Thus absence of living germ of disease, putrefaction or fermentation.

ASTEATOSIS (as-tē-a-tō′-sis) G. **a**, without; plus, tallow, plus osis, disease. Defective secretion of sebaceous matter by the glands of the skin.

ATROPHY (at′-rō-fi) G. **a**, without; plus **trophi**, nourish. Thus lacking nourishment. A wasting of the body, or part of it, owing to defective nutrition.

ATTOLENS (a-tol′-enz) L. **attolere**, to lift up. In anatomy an attolent muscle, a levator.

ATTRAHENS (at-ra′-henz) L. **attrahere**, attract. Thus drawing forward. The opposite of retrahens, drawing back. Used as attrehems aurem, the name of a small muscle whose action tends to draw the ear forward.

AUDITORY (aw′-di-tō-ri) L. **audire**, hear. Thus pertaining to hearing or to the sense or organs of hearing as the auditory nerve.

AURICULAR (aw-rik′-ū-lar) L. **auris**, ear. Thus pertaining to the ear. The auricles are also chambers of the heart, deriving name from earlike portions of each of these chambers.

AXIAL (ak'-si-al) G. **axis.** Thus pertaining to or of the nature of an axis. Axilla is the armpit. Derived from the arm revolving on an axis.

B

BACTERIA (bak-tē'-ri-ah) G. **"little sticks."** Thus belonging to the family of stick insects or walking sticks. Microbes, germs.

BACTERIOLOGY (bak-tē'-ri-ol-ō-ji) G. Bacteria; plus **ology,** science of.

BASILIC ((ba-sil'-ik) G. basil: royal, kingly. Applied to largest vein of arm.

BLEB (bleb) Eng. a small globe of liquid; a blister. See **Bullae.**

BROMIDROSIS ((brō-mi-drō'-sis) G. **stench;** plus, **hidrosis,** sweat. Sweat-stench, that is, fetid perspiration. In this disease of the sweat glands the sweat has a very offensive odor.

BUCCAL (buk-'-al) L. **bucca,** the cheek; pertaining to cheek or mouth.

BUCCINATOR (buk'-sin-ā-tor) L. **bucina,** trumpet. Thus the muscle used in blowing wind instruments; also used in mastication.

BUULAE or BLISTER—Pea-sized or larger elevation of the epidermis filled with liquid.

C

CANINUS (kā-ni'-nus) L. **canis,** a dog. This refers to region of dog teeth in human skull; that is the eye teeth in the upper and stomach teeth in the lower jaw. The caninus muscle, also called levator anguli oris (lifters of angles of mouth) is inserted in the angle of the mouth, raising the corners.

CANITICS (ka-nish'-i-ēz) L. **canus,** hoary, white-haired. Thus whiteness or grayness of the hair.

CAPILLARY (kap'-il-ā-rie; also kap-il'-ari) L. **capilla,** hair. Thus hair-like in size. The capillaries are minute blood-vessels which form a network between the terminations of the arteries and beginnings of the veins.

CAPITA (ka'-pi-ta) L. plural of **caput.**

CAPUT (kap'-ut) L. head. Thus the head or upper extremity of some part of the body.

CARCINOMA (kahr-si-nō'-mah) G. a crab. Cancer.

CARDIAC (kar'-di-ak) G. the heart. Thus pertaining to the heart.

CAROTID (ka-rot'-id) G. **carus,** heavy sleep. Carotids are the two great arteries of the neck, so-called, from the belief that sleep was caused by increased flow of blood to the head through these arteries.

CAUDAD (kah'-dad) L. **cauda,** tail, plus, **ad,** to. Thus toward the tail. It is downward in man. The mouth is caudad with respect to the nostrils.

CAUDAL (kaw'-dal). See caudad. The neck is a caudal part of the body with reference to the head.

CARPAL (kahr'-pal) L. **carpus,** wrist. Hence, pertaining to the wrist.

CEPHALIC (se-fal'-ik) G. **cephalo,** the head. Thus situated or directed toward the head; connected with or constituting the front or fore part of the body or organ; opposed to caudal. The cephalic vein is a large superficial vein on the front of the arm; so named because the ancients used to open it as a remedy for disorders of the head.

CEREBRAL (ser'-ē-bral) L. **cerebraum,** the brain. Pertaining to the brain.

CEREBRO (ser'-ē-bro). Pertaining to the cerebrum or brain.

CERVICAL (ser'-vi-kl) L. **cervix,** the neck. Thus pertaining to the neck.

CHLOASMA (klō-az'-mah) G. to become pale green; greenness. Symptomatic chloasma, or liver spots, appear as yellowish brown pigmentations of the skin.

CHROMIDROSIS (krō-mi-drō'-sis) G. **chrom,** color; plus, **hidrosis,** sweat. Thus colored sweat. A disease of the sweat glands.

CICATRICES (si-kā'-tri-sez). Plural of cicatrix.

CICATRIX (si-kā'-triks). A scar. The mark left by a wound or destruction of connective tissue.

CLAVICLE (klav'-ikl) L. **clavis,** a key. Refers to collarbone, a long key-shaped bone placed horizontally above the thorax.

CLIDO (klī'-do) L. **clavis,** key. Also spelled cleido. See clavicle; also sternocleido-mastoid.

COAGULATE (kō-ag'-ū-lāt) L. **coagulare,** to curdle, congeal, clot.

COCCYX (kok'-siks) G. cuckoo, whose bill it is said to resemble. Refers to tail bones of the spinal column, usually numbering four small segments.

COLLI (kol'-lī) L. pertaining to the **collum,** neck.

CONGENITAL (kon-jen'-itl) L. **cum,** with; plus **genitus,** birth. Thus born with

COMEDO (kom'-e-dō) L. a glutton. On theory that a person who ate too much—a glutton—developed blackheads.

COMPRESSOR (kom-pres'-or) L. press together. Thus a muscle which compresses any part.

CORIUM (kō-re-um) L. **corium,** hide or leather. Refers to innermost layer of skin. The true skin.

CORNEUM (kōr'-ne-um). One of the layers of the epidermis.

CORONARY (kor'-ō-nā-ri) L. **corona,** a crown. Thus encircling.

CORRUGATOR (kor'-o-gā-tor) L. wrinkle, pucker, fold. Thus the corrugator supercili muscle draws the eyebrows downward and inward causing frowning.

CORTEX (kōr'-tex) L. **cortex,** bark. Thus surface layer of an organ as distinguished from the inner or medullary.
CORTICAL (kor'-ti-kal). See cortex.
COSMETIC (koz-met'-ik) G. adorn, decorate. Thus beautifying. Any preparation used for beautifying the complexion.
CRANIUM (krā-ni-um) G. skull.
CRANULOSUM (crā-nū-lo'-sum). See cranium.
CUTANEOUS (kū-tā-nē-us). Pertaining to the L. **cutis,** skin.
CUTICLE (kū-tikl) L. **cutis,** skin. The epidermis, the outer layer of the skin. Also called the cuticle or scarf skin.
CYST (sist) G. bladder. Thus a bag or pouch.

D

DEPILATORY (dē-pil'-a-tō-ri) L. depilare..... to deprive of hair, **pilus.** Thus a hair remover.
DEPRESSOR (dē-pres'-or) L. **deprimere,** to press down. Thus a muscle which depresses or a nerve whose stimulation lowers motion.
DERMATOSIS (der-ma-tō'-sis) G. **derma,** the skin; plus **osis,** disease. Thus disease of the skin.
DORSAL (dōr'-sal) L. dorsum, the back. Thus pertaining to the back.

E

ECZEMA (ek-zēm'-ah or ek'-ze-mah) G. to boil up or out. Thus an inflammation of the skin attended with considerable discharge of lymph.
EFFLEURAGE (e-flu'-razh) French, **effleurer,** to touch. Thus the stroking movement in massage.
EPI (ep'-i) G. upon.
EPICRANIUM (ep-i-krā'-ni-um) G. **epi,** upon; plus **cranium,** the skull.
EPIDERMIS (ep-i-der'-mis) G. **epi,** upon; plus **dermis,** skin. Thus upon the skin. The outer layer of the skin.
EPILEPTIC (ep-il-ep'-tik) G. a seizure, fits.
EPONYCHIUM (ep-ō-nik'-i-um) G. **ep,** upon; plus **onyx,** the nail. A layer of the epidermis which extends over the base of the finger nail.
ETHMOID (eth'-moid) G. sieve; plus **oid,** having the form or resemblance. Thus sieve-like. Refers to bone in skull, perforated with holes for passage of olfactory nerves.
EXCORIATION (eks-kō'-ri-ā-shun) L. **excoriare,** strip off the skin. Thus a broken surface of the skin.

F

FAVUS (fā'-vus) L. **favus,** a honeycomb. Thus a contagious skin disease marked by the formation of round, cup-shaped crusts.
FIBRIN (fī'-brin) L. **fibra,** fibre. An essential protein portion of the blood clot. The fibrin upon contact with air immediately forms white fibres which catch the white corpuscle and then the red. This forms a clot.

FISSURE (fish'-ur) L. **fissura,** a cleft, groove.
FLEXOR (flex'-or) L. **flexus,** bend. Thus a muscle whose function is to bend or produce flexion.
FOLLICLE (fol'-ikl) L. **follis,** bag or sack. The hair follicle is a sack or pouch-like depression in the skin from which the hair grows.
FRONTALIS (fron-tā'-lis) L. **frons,** the forehead. Thus the bone of the forehead.
FURUNCLE (fū-rung'-kl) L. **furnuculus,** a boil.

G

GALEA (gā'-lē-ah) L. **galea,** a helmet. Thus the galea aponeurotica is the name of the muscle which covers the top of the skull like a helmet.
GERMICIDE (jer'-mi-sīd) Germ., plus L. **caedere,** to kill. Thus germ-killing.
GLANDULAE (glan'-dū-lē) L. plural of gland.
GLOSSOPHARYNGEAL (glos-ō-fa-rin'-jē-al) G. glosso, tongue; plus pharynx. Thus pertaining to the tongue and pharynx. A large nerve distributed to these.
GRANULOSUM (gran-ū-lo'-sum) L. diminutive of **granum,** grain. The stratum granulosum of the epidermis is a thick layer of granular cells.

H

HEMAL (hē'-mal) G. blood. Thus pertaining to or connected with blood; blood vessels, blood circulation; vascular. Thus hematidrosis is bloody sweat. Also means situated on the side of the body containing the heart and great arteries; hence the front as opposed to dorsal or back.
HEMATIDROSIS (hem-a-ti-drō'-sis). Bloody sweat. See hemal and drosis.
HEMI (hem'-i) G. **hemi,** half. Same as L. **semi.**
HERPES ZOSTER (her'-pēz-zos-ter) G. **herpes,** a creeping; plus **zoster,** a girdle. Also called shingles. So called from tendency of the eruption to spread from one part of skin to another.
HIDROSIS (hī-drō'-sis) G. sweat, perspiration.
HYDRO (hī'-drō) G. water.
HYDROCYST (hī'-drō-sist) G. **hydro,** water; plus **cyst,** bladder or sack. Thus a watery cyst.
HYDROCYSTOMA (hī'-drō-sist-ōm'-ah) G. **hydrocyst;** plus **oma,** a tumor. Thus a cyst formation of the sweat glands due to excessive sweating.
HYGIENE (hī'-ji-en) G. **Hygeia,** the Goddess of Health. Thus the science of health and of its preservation.
HYPER (hī'-per) G. above or over. Same as L. **super.**
HYPERDROSIS (hīper-drō'-sis) G. **hyper,** over; plus **drosis,** sweat. Thus excessive sweating.
HYPERTRICHOSIS (hīper-tri-kō'-sis) G. **over-hair;** plus, **osis,** disease. Thus abnormally large growth of hair. Also called "hypertrichiasis."

HYPEROSTOSIS (hīper-os-tō′-sis) G. **hyper,** over; plus, **os,** bone; plus, **osis,** disease. Thus an overgrowth of bone.
HYPERTROPHY (hī-per′-trō-fie) G. over-nourished. Thus enlargement of a part.
HYPO (hī′-pō) G. **under.** Same as L. **sub.**
HYPOGLOSSAL (hīpō-glos′-sal) G. **hypo,** under; plus, **glossa,** tongue. Thus under the tongue. Hence the motor nerve of the tongue.
HYOID (hī′-oid) G. shaped like our letter "U." Thus the U-shaped bone lying in front of the throat just above the laryngeal prominence (Adam's apple).

I

IMPETIGO (im-pe-tī′-gō) L. rush upon. Impetigo contagiosa is an acute, contagious scalp disease.
INDURATA (in′-dū-rā′-ta) L. **in;** plus **durus,** hard. Thus hardened, calloused. The hardening of tissues from any cause, such as disease.
INFERIOR (in-fer′-ior) L. lower. Situated or directed below.
INFERIORIS (in-fer-i-ō′-ris). See inferior.
INFRA (in′-fra) L. below; on the under side.
INFRA ORBITAL (in′-frah-or′-bitl) L. infra, below; plus, **orbis,** circle. Thus below or under the orb, eye.
INNOMINATE (in-nom′-in-āt) L. **in,** un; plus **nomen,** name. Thus unnamed. Refers to an artery of the heart and veins of the upper thorax.

J

JUGULAR (joo′-gū-lahr) L. **jugulum,** the throat.

L

LABIAL (lā′-be-al) L. **labium,** the lip. Referring to the lip.
LABII (lā′-bī) L. Of the lips.
LACHRIMAL (lak′-rim-al) L. **lacrima,** a tear.
LACHRYMAL. Same as lacrimal.
LACTEAL (lak′-tē-al) L. **lacteus,** milky. The name given to the lymphatics which take up a milk white fluid called chycle.
LANUGO (lā-nū′-gō) L. **lana,** wool. Thus fine hair. The fine hair covering the entire body.
LARYNX (lar′-ingks) G. throat, windpipe.
LATERAL (lat′-er-al) L. **lafus,** side. Thus pertaining to the side; alongside.
LATERALIS (lat-er-ā′-lis) L. spelling for lateral.
LENTIGO (len-tī′-gō) L. **lentis,** a lentil. Thus lentil shaped. Refers to shape of freckles (lentigo).
LESION (lē′-zhon) L. **loedere,** to hurt. Thus any wound; morbid change in the structure of organs. Macules, papules, pustules, tubercles, wheals, tumors, vesicles, blebs are all lesions of the skin.

LEUCOCYTE (lu′-ko-sīt) G. **leukos**, white; plus, **cyte**, cavity or hollow. Thus the white cells or corpuscles of the blood.

LEUCODERMA (lū-kō-der′-ma) G. **leukos**, white, plus **dermis**, skin. Thus abnormally white skin.

LEVATOR (lē-vā′-tor) L. **levare**, to raise. Opposite of depressor. Thus any raising or lifting muscle.

LINGUAL (ling′-gwal) L. **lingua**, the tongue.

LOGY (lo′-je) G. science. This is an ending of many common English words. Thus physiology is the science or study of the functions of the body.

LOTION (lō′-shon) L. **lavere**, to wash.

LUCIDUM (lū′-sid-um) L. **lucidus**, clear. The stratum lucidum is a layer of the epidermis.

LUMBAR (lum′-bahr) L. **lumbus**, loin. Thus in the region of the loins, as lumbar vertebrae.

LUNULA (lū′-nū-la) L. **luna**, the moon. Shaped like minute moons. Thus the white crescents at the roots of the finger nails.

LYMPH (limf) L. **lympha**, clear water. Thus the colorless fluid of the lymphatic system of the body.

M

MACULES (mak′-ūls) L. **macula**, a spot, blotch, that is neither elevated nor depressed. Refers to lesions of the skin.

MAJOR (mā′-jor) L. greater.

MALAR (mā′-lahr) L. **mala**, the cheek.

MALPIGHIAN (mal-pig′-ian). Malpighi, Italian anatomist who discovered or investigated parts of the body. For example, the rete malpighian or mapighian layer is the germ layer of the epidermis.

MANDIBLE (man′-di-bl) L. **mandere**, to chew. Thus the lower jawbone.

MANDIBULAR (man-di′-bū-lar). Pertaining to the mandible or lower jaw.

MASSETER (ma-sē′-ter) G. chewer.

MASTOID (mas′-toid) G. mast breast, plus **oid**, like. Thus breast-shaped, teat-like, shaped like a nipple. Refers to mastoid portion of temporal bones of the skull.

MATRIX (mā′-triks) L. **mater**, mother. Thus the parent stem or ground-work in which anything is cast. For example: the hair matrix, the epidermic root of the hair follicle.

MAXILLARY (mak′-si-lā-ri) L. **maxilla**, the jawbone, especially the upper (superior maxilla). The lower or inferior maxilla is also called the mandible.

MAXIMUM (max′-i-mum) L. greatest, superlative of **magnus**, great.

MEDIAN (mē′-di-an) L. medius, middle.

MEDULLA (med′-ūl-ah) L. the marrow.

MENTALIS (men-tā′-lis) L. **mentum,** the chin. The muscle of the chin which elevates the lower lip. The word "mental" derived from L. **mens,** mind, should not be confused with **mentum,** the chin.

META (met′-ah) G. next after.

META CARPUS (met′-ah-kahr′-pus) G. next after; plus L. carpus, wrist. See hypermeta-carpal.

MILIARIA (mil-e-ā′-re-ah) L. **milium,** millet seed. Acute inflammation of the sweat glands characterized by formation of small red pimples and vesicles. Also called milaria ruba, prickly heat. (L. **rubrica,** red.)

MILIARIA CRYSTALLINA (mil-e-ā′-re-ah kry′-stal-ī′-na) L. **milium,** millet seed; plus **crystallina,** crystal. Same as sudamen.

MINOR (mī′-nor) L. smaller. Opposed to major or greater.

MORBID (mor′-bid) L. **morbus,** disease. Thus, diseased.

MOTOR (mō′tor) L. **movere,** to move. Thus a muscle, nerve or center that effects or produces movement.

MUCOSUM (mū-kō′-sum). See mucous.

MUCOUS (mū′kus) L. **mucus,** slimy. Thus, secreting a slimy substance as the mucous membrane.

MYLO HYOID (mī′lō-hī′-oid) G. **mylo,** molar tooth; plus **hyoid,** bone. Thus pertaining to the molar teeth and hyoid bone. Hence, nerves and muscles in the region of the molar teeth and hyoid bone.

N

NARIS (nā′-ris) L. a nostril.

NASAL (nā′-zl) L. **nasus,** the nose.

NASI (nā′-si) L. plural of **nasus.** Also of the nose.

NASO-CILIARY (nā′-zō sil′-i-ary) L. **nasus,** the nose; plus **cilium,** the eyelid. Name given to a branch of the fifth or trigeminal nerve.

NEURAL (nū′-ral) G. **neuro,** nerve. Thus pertaining to the nerves.

NODOSA (nō′-dō′-sa) L. **nodus,** a knot. Thus, knotty.

O

OCCIPITAL (ok-sip′-ital) L. **occiput,** back part of the head (caput).

OCCIPITO (ok-sip′-i-tō). See occipital. The occipito frontalis muscle, covering the head, has two parts—the occipito (back) and frontalis (front), connected by a membrous tendon known as galea aponeurosis.

OID (oid) G. having form of, resembling. Thus hyoid, resembling the letter U.

OLEOSA (ō-lē-ō′-sa) L. **oleum,** oil. Thus oily, fatty.

ONYCHATROPHIA (ō′-nik-a-trō′-fi-ah). Undernourishment of the finger nails.

ONYCHIA (o-nik′-i-ah) G. finger nail.

OMA (ō-ma) G. denoting a tumor. Example: Neuroma **neur**-nerve, plus **oma**—tumor.

OPTHALMIC (of-thal'-mik) G. of or for the eyes, eyeball or visual apparatus.

OPTIC (op'-tik) G. **optikus,** eye. Pertaining to the eye.

ORB (ōrb) L. **orbis,** circle. Thus anything circular. A cavity applied to eye socket.

ORBITAL (or'-bi-tal). Of or pertaining to the orbit of the eye.

ORBICULARIS (or-bik-ū-lā'-ris) L. **orbiculus,** a small disk. Thus shaped like an orb. In anatomy, a muscle surrounding an orifice, as that of the mouth or eyelids: a sphincter. The orbicularis oculi is the circular muscle of the eyelid.

ORIS (ō'-ris) L. **os,** mouth of which plural is **ora.** Thus a mouth, passage or entrance as angulus oris.

OS (os) G. bone as **os hyoidum,** hyoid bone. Os is also L. mouth.

OSIS (ō'-sis) G. disease; condition.

P

PALATIVE (pal'-ā-tiv) L. **palatum,** roof of mouth. Thus pertaining to roof of mouth.

PALPEBRAL (pal'-pe-bral) L. **palpebra,** eyelid. Thus pertaining to eyelid.

PANICULUS (pa-nik'-ū-lus) L. small piece of cloth. Thus a layer of muscle or tissue.

PANIDROSIS (pan-i-drō'-sis) G. pan all, universal, plus **hidrosis,** sweat.

PAPILLA (pā-pil'-ah) L. **papilla,** a nipple, teat. Also a pimple. Diminutive form of papula. Thus something like a papule—nipple shaped. Hence the hair papilla is the nipple shaped elevation at the base of the hair follicle.

PAPILLAE (pā-pil'-ē) Plural of papilla.

PAPULES (pap'-ūls) L. **papula,** a small pinhead to pin size elevation, without pus. Generally known as a pimple.

PAPULOSA (pap-ū-lō'-sah). See papules.

PARIETAL (pā-ri'-e-tal) L. **paries,** a wall. Thus pertaining to walls of a cavity as distinguished from contents.

PARONYCHIA (par-ō-nik'-i-a) G. **par,** beside! plus **onychia,** finger nail. Thus a disease of the nail matrix.

PAROTID (pa-rot'-id) G. beside the ear. Thus the parotid gland situated near the ear which secretes saliva which is poured into the mouth.

PATHOGENIC (path-ō-jen'-ik) G. **pathos,** disease; plus **gen,** produce. Thus disease producing.

PEDICULUS (pe-dik'-ū-lus) L. a louse. Meaning little feet; derived from **pes,** foot.

PEDICULI CAPITIS (pe-dik'-ū-lī kap'-i-tis) L. lice; plus **caput,** head. Thus head lice.

PEDICULOSIS (pē-dik-ū-lō′-sis) L. **pediculus,** a louse, plus **osis,** disease. Thus a disease caused by lice.
PERI (per′-i) G. around, about. Same as L. **circum.**
PERIPHERAL (pe-rif′-e-ral) G. outer surface.
PERI FOLLICULAR (per′-ē fol-ik′-ū-lar). Around a follicle.
PHALANGE (fā-lanj′) G. **phalanx,** the bone between the joints of fingers, or toes.
PILI (pī′-lī) L. **pilus,** a hair.
PITUITARY (pit′-ū-i-ta-ri) L. **pituita,** mucous, phlegm. Refers to gland at base of brain which was supposed to secrete mucous.
PITYRIASIS (pit-i-rī′-a-sis) G. bran. Thus a skin eruption in which it sheds bran-like scales.
PLASMA (plas′-mah) G. form, mold. Thus the body, liquid part of blood.
PLATYSMA (plā-tis′-mah) G. **platy,** flat, broad. The name given to the thin muscular sheet on the side of the neck between the skin and deep muscular tissue.
POSTERIOR (pō-ster-i-or) L. comparative of **posterus.** Thus coming after, following.
PLASMA (plas′-mah) G. mold. Body. Thus liquid part as distinguished from corpuscles.
PLEXUS (plek′-sus) L. **plexus,** an interweaving or network. Thus refers to any network, such as formed by facial artery or arteries of the lips.
PRIMARY (prī′-mā-ri) L. **primus,** first.
PROCERUS (pros′-e-rus) G. before; plus horn. Thus pyramidal muscle on bridge of nose.
PSORIASIS (sō-rī′-a-sis) G. **psora,** the itch. Thus a chronic noncontagious skin disease.
PTERGOID (ter′-i-goid) G. **pteron,** wing; plus **oid,** form. Thus wing-like. The ptergoid muscles effect the sidewise, forward and backward movements of the jaw. The internal mandible raises it.
PULMONARY (pul′-mō-nā-ri) L. **pulmo,** lung. Pertaining to the lung.
PUNCTATA (punk-ta′-tah) L. pertaining to points.
PUSTULES—Elevation of the epidermis similar to vesicles except containing pus.
PUSTULOSA (pus-tū-lō′-sa). Discharge of pus.
PYRAMIDALIS (pi-ram-i-dā′-lis) L. a pyramid. Name given to certain pear-shaped muscles as pyramidalis nasi.

Q

QUADRATUS (kwod-rā′-tus) L. **quadratus,** a square. Refers to certain muscles of the mouth.

R

RECTUS (rek′tus) L. straight. Thus applied to certain muscles so called from straightness of their courses.
RETE (rē′-te) L. a net. Thus a vascular network; a plexus, which see.

RETICULARIS (re-tik-ū-lā′-ris) L. **reticulum**, a little net.
RETRAHENS (rē′-trā-henz) L. to draw back.
RISORIUS (rī′-sō-ri-us) L. **risum**, laughed. Thus the laughing muscle; the muscle used in laughing.
ROSACEA (rō-zā′-sē-ah) L. rosa, a **rose**. Thus rose colored. Thus acne rosacia is acne marked by redness.

S

SACRUM (sā′-krum) L. the sacred bone. Refers to the most solid portion of the spinal column consisting of five sacral vertebrae.
SANITATION (san-i-tā′-shon) L. **sanitas**, health. Thus the application of measures to promote health.
SARCOMA (sahr-kō′-mah) G. to produce flesh. Thus a tumor composed of tissue.
SCAPULA (skap′-ū-lah) L. the shoulder blade.
SCAPULAR (skap′-ū-lar). Of or pertaining to the shoulders or shoulder blade.
SEBORRHOEIC (seb-ō-rē′-ik). Of or pertaining to seborrhea.
SEBACEOUS (sē-bā′-shius) L. **sebum**, fat. Thus pertaining to fat. Thus fatty, secreting or conveying sebaceous matter.
SEBORRHEA (seb-ō-rē′-ah) L. sebum, plus G. flow. Thus fat flowing. Thus seborrhea (dandruff) is a disease of the oil glands in which an abnormal secretion is thrown off.
SEBUM (sē′-bum) L. fat, tallow.
SENILE (sē′-nil) L. **senilis**, old age.
SEPTUM (sep′-tum) L. **septum**, a partition. Hence a wall; dividing an organ as the septum nasi.
SICCANT (sik′-ant) L. **siccus**, dry. Having power to dry.
SINUS (sī′-nus) L. a hollow. Hence a hollow of bone or other tissue as the frontal sinuses, the hollow spaces between the tables of the frontal bone over the root of the nose.
SPHENOID (sfē′-noid) G. wedge shaped or formed.
SQUAMA (skwā′-mah) L. a scale. Thus a scale as of the epidermis; also a thin, scale-like part of a bone as the squama of the occiptal bone.
STEATOMA (stē′-a-tō-ma) G. fatty tumor. Hence wens.
STERILE (ster′-il) L. **sterilis**, unfruitful, barren.
STERILIZATION (ster-il-i-zā′-shon). Process of making barren. Thus destruction of germs.
STERNO-MASTOID (ster-nō′ - mast′-oid) L. **sternum**, breast bone; plus G. mastoid, breast-shaped. Thus the most prominent muscle of the neck deriving name from its origin and insertion arising from upper part of sternum and mastoid portion of the temporal bone.
STERNUM (ster′-num) L. breast bone.

STRATUM (strā′-tum) L. layer, as stratum corneum of the skin.

STRIATED (strī′-āt-ed) L. **stria**, a furrow, hollow. Thus striped.

STYPTIC (stip′-tik) L. meaning to draw together, contract. Hence having quality of checking bleeding.

SUB. L. under.

SUBCUTANEOUS (sub-kū-tā′-nē-us) L. **sub**, under; plus, **cutis**, the skin. Thus under the skin.

SUDAMEN (su-dā′-men) L. **sudare**, sweat. Thus a disorder of the sweat glands in which an eruption of small vesicles containing sweat appear on the body.

SUDORIFEROUS (sū-dō-rif′-e-rus) L. **sudor**, sweat, plus **ferre**, to bear. Thus sweat-bearing.

SUPER (sū′-per) L. over, above.

SUPERCILIARY (su-per-sil′-ā-ri) L. **super**, over, plus **cilium**, the eyelid.

SUPERCILII (sū-per-sil′-i). See superciliary. Corrugator supercilii muscle is under the skin at the head of eyebrow, drawing eyebrows inwards and slightly forward.

SUPERIOR (sup-ēr′-i-or) L. comparative of super. Thus higher.

SUPERIORIS (sup-ēr-i-ō-ris) See superior.

SUPRA. Same as super.

SUPRATROCHLEAR (sūp-er-trōk′-lē-ahr). L. super plus trochlear. Above the trochlear, which see.

SYMPTOMATICA (sim-tō-mat′-i-ka) G. mischance. Thus a departure from the normal function.

T

TAPOTEMENT (ta-pot′-ment) French, tap. Thus one of the movements in massage.

TEMPORAL (tem′-pō-ral) L. **tempora**, the temples. Thus pertaining to the temples of the head. Refers to temporal bones, arteries, veins and muscle—the muscle of mastication.

THERAPEUTIC (ther-a-pū′-tik) G. curative.

THERAPY (ther′-a-pi) G. healing or service. Thus cosmetic therapy concerns any remedy or measure to beautify the skin or its appendages.

THERMAL (ther′-mal) G. pertaining to heat.

THORACIC (thō-ras′-ik) G. **thorax** chest. Hence pertaining to the chest. The thorax is formed by the sternum or breast bone and costal cartilages in front; the ribs on each side and the thoracic vertebrae behind.

THYROID (thī′-roid) G. shield shaped. Name given to small flat gland lying against the fore part of the trachea or wind pipe. The thyroid cartilage, also shield-shaped, forms the Adam's apple

TINEA (tin′-ē-ah) L. a gnawing worm. Tinea trichophytina is the contagious scalp disease known as ringworm.

TRANS. L. across.

TRAPEZIUS (trā-pē′-zi-us) L. **trapezium,** table. So called as sides are irregular as the trapezius muscle of the back.

TRIANGULARIS (trī-ang-ū-lā′-ris) L. having three angles; triangular. Thus the triangularis muscle, attached to the lower jaw, forms a triangular layer.

TRANSVERSALIS (trans-ver-sā′-lis) L. lying across.

TRICHOPHYTINA (trik-ō-fī-tē′-na) G. **trichos,** hair; plus, **phyton,** plant. Thus a fungus which thrives in the hair follicles, causing tinea.

TRICHOPHYTOSIS (trik-o-fi-tō′-sis). Ring worm. See tinea.

TRICHOREXIS-NODOSA (trik-ō-rek′-sis no-dō′-sa) G. **trichos,** hair; plus breaking, plus L. **nodus,** knot. Thus a hair disease characterized by brittleness and the formation of swellings on the shaft.

TRIGEMINAL (trī-jem-i-nal) L. three at a birth. Thus triple. Refers to trifacial or fifth cranial nerve.

TROCHLEAR (trok′-le-ar) G. pulley. Thus the trochlear muscle of the orbit of the eye runs through a pulley-like tendon.

TROPHI (trō′-fi) G. nourish, feed. Thus a trophic nerve is one which directly influences the nutrition of the tissue to which it goes.

TUBERCLES (tū′-ber-kls) L. **tuberculum,** a small bump, swelling. A small rough elevation of the surface.

TUBERCULES. A solid, rounded, pea-sized, somewhat deep-seated elevation, generally of a persistent character. Does not contain fluid.

TURBINATES (ter-bi-nāts′) L. L. **turbinatus,** shaped like a top-whipping top; scroll-like. Thus the turbinated bones on the outer walls in the nostril consist of a layer of thin bone, curled upon itself like a scroll.

U

ULTRA (ul′-tra) L. beyond.

V

VASCULAR (vas′-kū-lahr) L. **vaculum,** a small vessel. Of or pertaining to vessels which carry a fluid. The vascular system consists of the heart, arteries, capillaries and veins.

VENA (vē′-nah) L. a blood vessel, vein.

VENA CAVA (vē′-nah kā′-vah) L. **vena,** plus **cava,** hollow (in anatomy a comparatively large hollow.) Thus either one of the large veins emptying blood into the right auricle of the heart.

VENTRAL (ven′-tral) L. **venter,** the belly. Hence hollowed out like a belly, as ventral walls or cavities. Also means toward the belly or stomach.

VENTRICLE (ven′-tri-kl) L. see ventral. Example: the ventricles of the heart.

VERA (ver′-a) L. **verus**, true. Cutis vera is the true skin or corium layer.

VERRUCA (ver-roo′-kah) L. a wart.

VERTEBRA (ver′-tē-brah) L. a joint, a bone of the spine.

VERTEBRAE (ver′-tē-brē). Plural of vertebra.

VESCICLE (ves′-i-kl) L. **vesica**, bladder, a bag, cyst.

VOMER (vō′-mer) L. a plowshare. Thus shaped like a plowshare. The vomer bone, a thin bone, shaped like a plowshare, which is located at the lower and back part of the nasal cavity.

W

WHEALS (hwēls). Evanescent elevations of the skin which appear in hives, nettle rash, as the result of mosquito bites.

Z

ZYGOMATIC (zī-gō-mat′-ik) G. a yoke, joint. Thus pertaining to the malar or jugal bone which connects the bones of the face and skull.

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